



# Soil Management Status Report Soil Testing to Refine Polygons in Western Landbay Former ARC Facility

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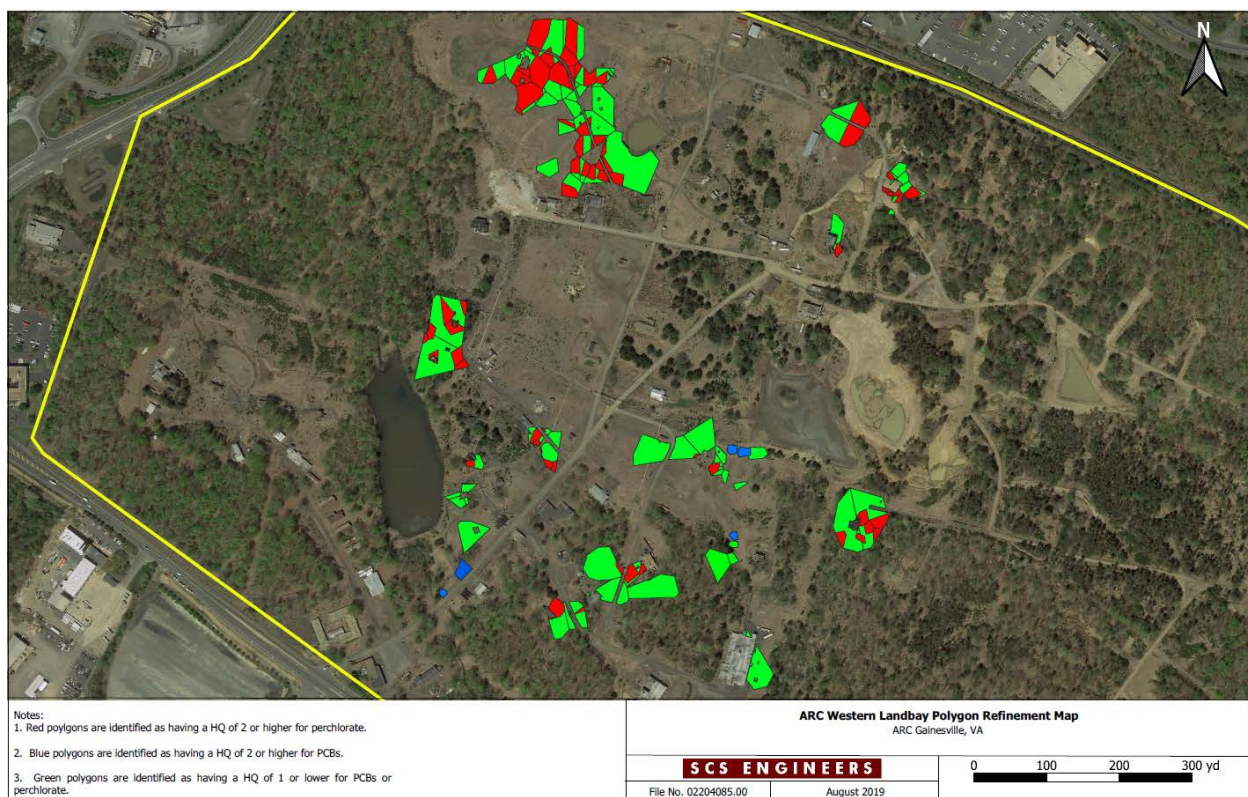
# 1 EXECUTIVE SUMMARY

This Soil Management Status Report (SMSR) was prepared for Gainesville Associates, and addresses soils contaminated with perchlorate or polychlorinated biphenyls (PCBs) in the Western Landbay of the ARC Site. The SMSR describes collection of supplemental soil samples for perchlorate analysis to refine sub-polygons following the methods of Integral (2016). In addition, it describes collection of supplemental soil samples for polychlorinated biphenyls (PCB) analysis in locations not sampled by prior investigators to both refine existing sub-polygons and to identify any new sub-polygons that should be addressed under the Soil Management Plan (SMP) (SCS 2017).

Polygon refinement was performed by adding the supplemental sampling data to previous Integral and Environ data sets, degrading the perchlorate concentrations following the methodology presented in Integral (2016), and utilizing GIS software to refine the extent of the polygons that have hazard quotients (HQs) of 2 or more based on the homegrown produce pathway.

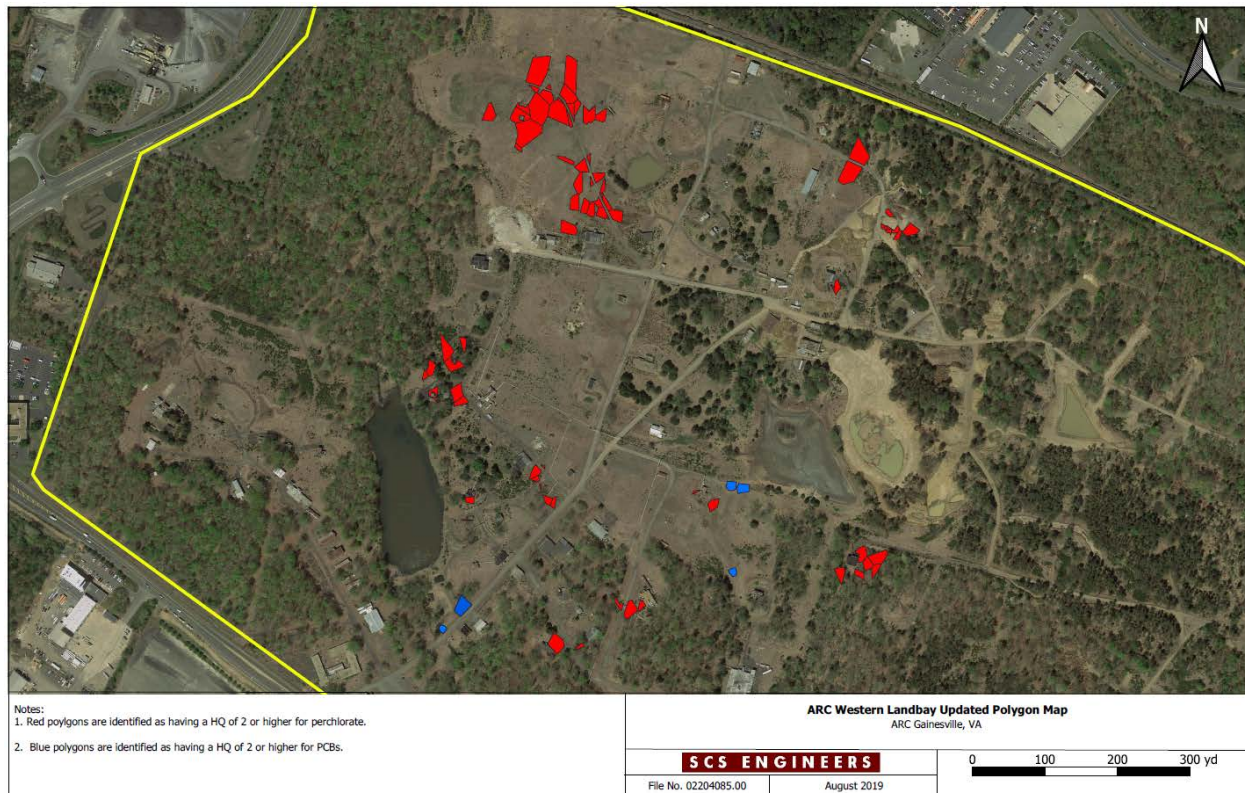
Additionally, PCB polygons were refined based on historical data and supplemental sample data collected by SCS. Following the methodology presented in Environ (2012) and using the GIS software, the polygons presenting HQs of 2 or more via the residential direct contact pathway were refined. Since one of the supplemental soil samples collected by SCS contained elevated PCBs (HQ of 2) and was from an area not previously identified as requiring soil management, a new polygon is shown in addition to the refined polygons for PCBs. **Figure 1** shows the extent of the polygons furnished by Integral (2017), color-coded to reflect the results of SCS's supplemental sampling. Areas shown shaded green do not require special soil management procedures.

Figure 1. Polygon Refinement Map



**Figure 2** presents only the refined polygons. The areas shown in red or blue are the only remaining areas of the Western Landbay of the ARC Site where soils require special soil management procedures based on perchlorate (red) or PCB (blue) concentrations.

Figure 2. Updated Polygon Map



## 2 INTRODUCTION

On behalf of Gainesville Associates, SCS Engineers prepared a Soil Management Plan (SMP) for the former Atlantic Research Corporation (ARC) Site located in Gainesville, Virginia (USEPA RCRA ID No. VAD023741705) (“the Site”). The objective of the SMP is to define the protocol for the management of soils exhibiting residual concentrations of Constituents of Concern, or COCs (principally low concentrations of perchlorate, semi-volatile organic compounds, and polychlorinated biphenyls, or PCBs) that may pose an unacceptable risk associated with residential land use exposures.

Integral Consulting, Inc. (consultants to ARC) provided coordinates for what it called Soil Removal Areas (SRAs), which define areas above risk-based concentrations considering direct contact and ingestion of homegrown produce (Integral, 2017). Tables 4, 5 and 7 of Integral (2016) show the sample locations where the Hazard Quotient (HQ) is expected to be 2 or greater as of various dates based on a risk-based target cleanup level of 0.0037 mg/kg for perchlorate and a homegrown produce pathway.

The HQs shown were based on historical and/or updated (2015) sampling results after application of a site-specific perchlorate dissipation rate. If a sample location had an HQ of 2 or greater, a sub-polygon (Thiessen polygon) was drawn around that sample location. Sub-polygon boundaries were based on the distance to the nearest sample location with an HQ of 1 or lower. In some cases, the distance between sample locations is large, which results in sub-polygons that are large.

### PURPOSE AND OBJECTIVE

The purpose of the work described in this report is to further characterize and delineate the remaining COCs (perchlorate and PCBs) in soils on the Western Landbay of the ARC Site that may pose an unacceptable risk associated with residential land use exposures. The work is intended to achieve the following objectives:

- Assure that redevelopment of the ARC Site is conducted in a manner that is protective of the health and safety of Site workers, future Site occupants, and the environment;
- Collect sufficient supplemental soil samples to support refinement of sub-polygons identified by consultants to ARC as exceeding risk-based thresholds for residential development.
- Supplement available information regarding potential contamination to support proper on-site reuse of soil excavated from SRAs for redevelopment purposes, as appropriate.

### 3 PILOT STUDY

SRA 2 was selected as the pilot test area for refinement of polygons. Figure 1 shows SRA 2, two sample results (B31AEC-1S and B32AEC-1S) were used by Integral to define sub-polygons that cover more than 5,600 square yards of area. Excavating this area to a depth of 3' would result in an excavated volume of over 5,600 cubic yards. Table 1 shows the perchlorate data for the two sample points associated with SRA 2 (Integral 2016). Both samples were collected at the edge of building foundations where perchlorate was handled, yet the inferred sub-polygon (Thiessen polygon) extends more than 100' from the sample location in some directions.

Figure 3. Soil Removal Area 2



Table 1. SRA 2 Historical and Predicted Concentrations

Sample Location	Original Sample Date	Original Sample Concentration (mg/kg)	1/1/2019 Predicted Concentration (mg/kg)
B31AEC-1S	9/1/2010	0.099	0.009
B32AEC-1S	9/2/2010	2.4	0.22

## PILOT STUDY RESULTS

To refine sub-polygon boundaries additional grab soil samples were collected at a depth of one foot and analyzed for perchlorate. The one foot grab samples are representative of soils in the 0 to 2 foot interval. Four soil samples were collected near the B32AEC-1S historical sample point, and three were collected near B31AEC-1S. A large soil berm is present on the east side of Building 31, so a surface soil sample was not collected in that direction; it is unlikely that perchlorate contamination would have spread uphill from Building 31 to the east. The figure below shows the sample locations.

Figure 4. SRA 2 Pilot Study Sample Locations



All seven soil samples were sent under chain-of-custody to GEL Laboratories LLC for perchlorate analysis via EPA Method 6850. Table 2 shows the analytical results for the seven samples. All of the supplemental samples either did not contain perchlorate above the detection limit or were found to contain perchlorate above the detection limit but too low to quantify (shown as estimated concentrations, "J").

Table 2. SRA 2 Polygon Refinement Soil Sample Results

Sample Location	Sample Date	Perchlorate Concentration (mg/kg)	Detection Limit (mg/kg)	Hazard Quotient
B31S-1	9/7/2018	ND	0.000607	NA
B31W-2	9/7/2018	ND	0.000626	NA
B31N-3	9/7/2018	ND	0.000679	NA
B32N-1	9/5/2018	0.00165 J	0.000573	NA
B32W-2	9/5/2018	ND	0.000580	NA
B32NW-3	9/5/2018	ND	0.000582	NA
B32SE-4	9/5/2018	0.000814 J	0.000602	NA

The Hazard Quotient column is the ratio of any detection to the 0.0037 mg/kg risk-based target cleanup level for perchlorate in residential vegetable gardens. A Hazard Quotient of 1 means the risks are acceptable. All of the results yielded a Hazard Quotient of below 1 or not applicable (NA). Based on the pilot test data, the extent of SRA 2 should be revised accordingly. Refined polygon limits are presented below in Section 3 of this report.

The pilot test confirmed that the extent of soil management polygons can be refined with supplemental soil sampling and analysis. We therefore conducted supplemental sampling and analysis to refine other polygons and to update the SMP accordingly.

## 4 SOIL SAMPLING

Additional soil sampling was performed by SCS on November 1, 2018, November 2, 2018, November 6, 2018, June 7, 2019, June 10, 2019, June 11, 2019, June 12, 2019, and June 13, 2019. A total of 83 soil samples were collected. Soil sampling was performed at a depth of 1 foot in all soil borings. The one foot grab samples are representative of soils in the 0 to 2 foot interval. A total of 48 perchlorate soil samples were collected. A total of 35 PCB soil samples were collected.

Soil samples were advanced utilizing a stainless steel hand auger. Soil samples were packed in coolers with ice and shipped under proper chain-of-custody to Galson Laboratories in East Syracuse, New York to be analyzed for perchlorate and PCBs. Table 1 presents the perchlorate soil concentrations. Table 2 presents the PCB soil concentrations. **Appendix A** includes the laboratory analytical reports.

### SRA 1

SRA 1 is located on the northern portion of the Western Landbay. A total of 14 soil samples were collected from SRA 1. **Table 3** presents soil sample chemical analysis for soil samples collected from SRA 1 by SCS. **Figure 5** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 5** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 6** illustrates the refined SRA 1 soil removal polygons in red.

Table 3. SRA 1 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA1-1	6/7/2019	ND	NA
SRA1-2	6/7/2019	ND	NA
SRA1-3	6/7/2019	ND	NA
SRA1-4	6/7/2019	ND	NA
SRA1-5	6/7/2019	ND	NA
SRA1-6	6/7/2019	ND	NA
SRA1-7	6/7/2019	ND	NA
SRA1-8	6/7/2019	ND	NA
SRA1-9	6/10/2019	7.37	2
SRA1-10	6/10/2019	ND	NA
SRA1-11	6/10/2019	11.6	3
SRA1-12	6/10/2019	1.01	NA
SRA1-13	6/10/2019	ND	NA
SRA1-14	6/10/2019	2.21	1

Figure 5. SRA 1 Polygon Refinement Map

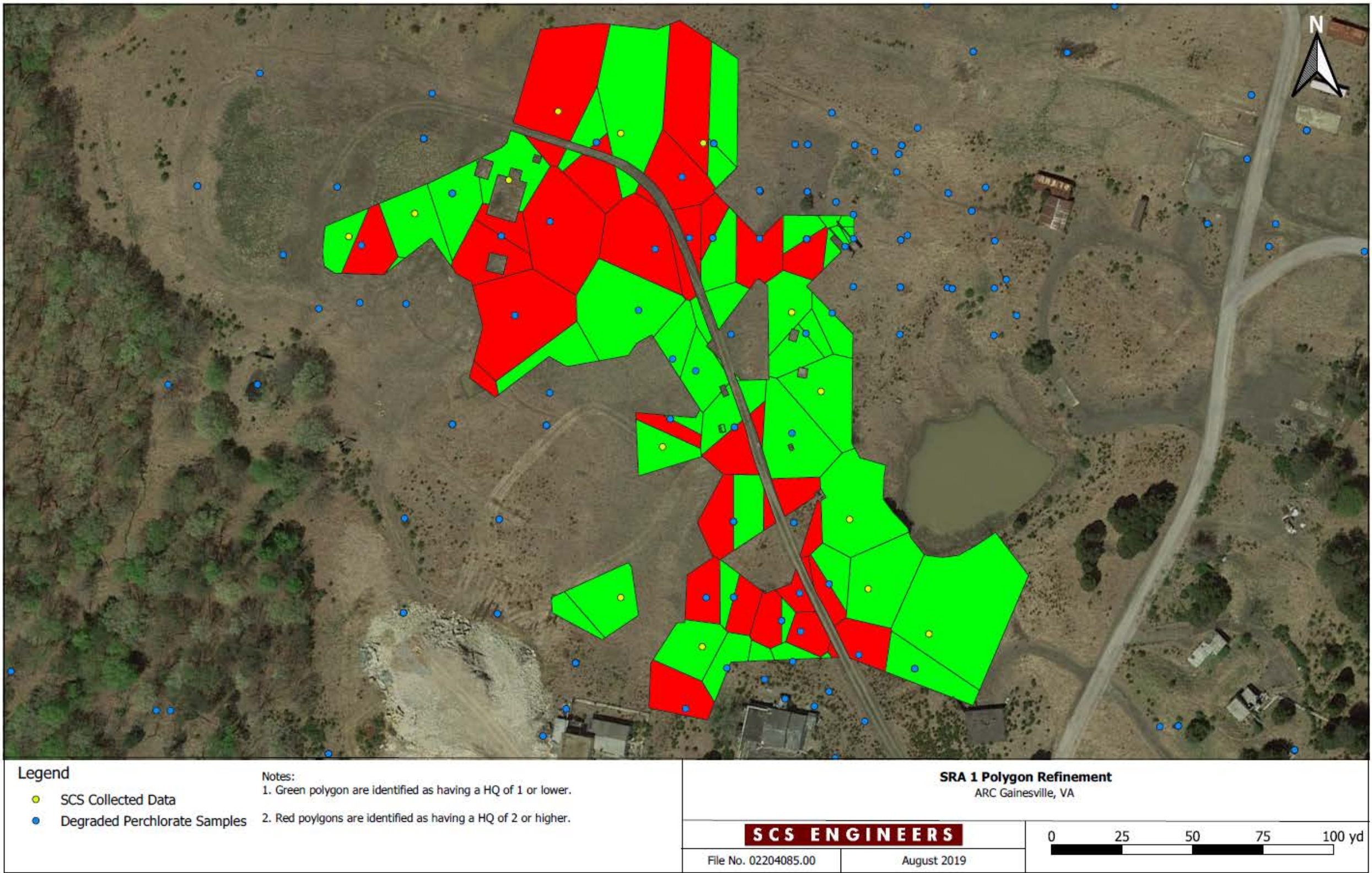
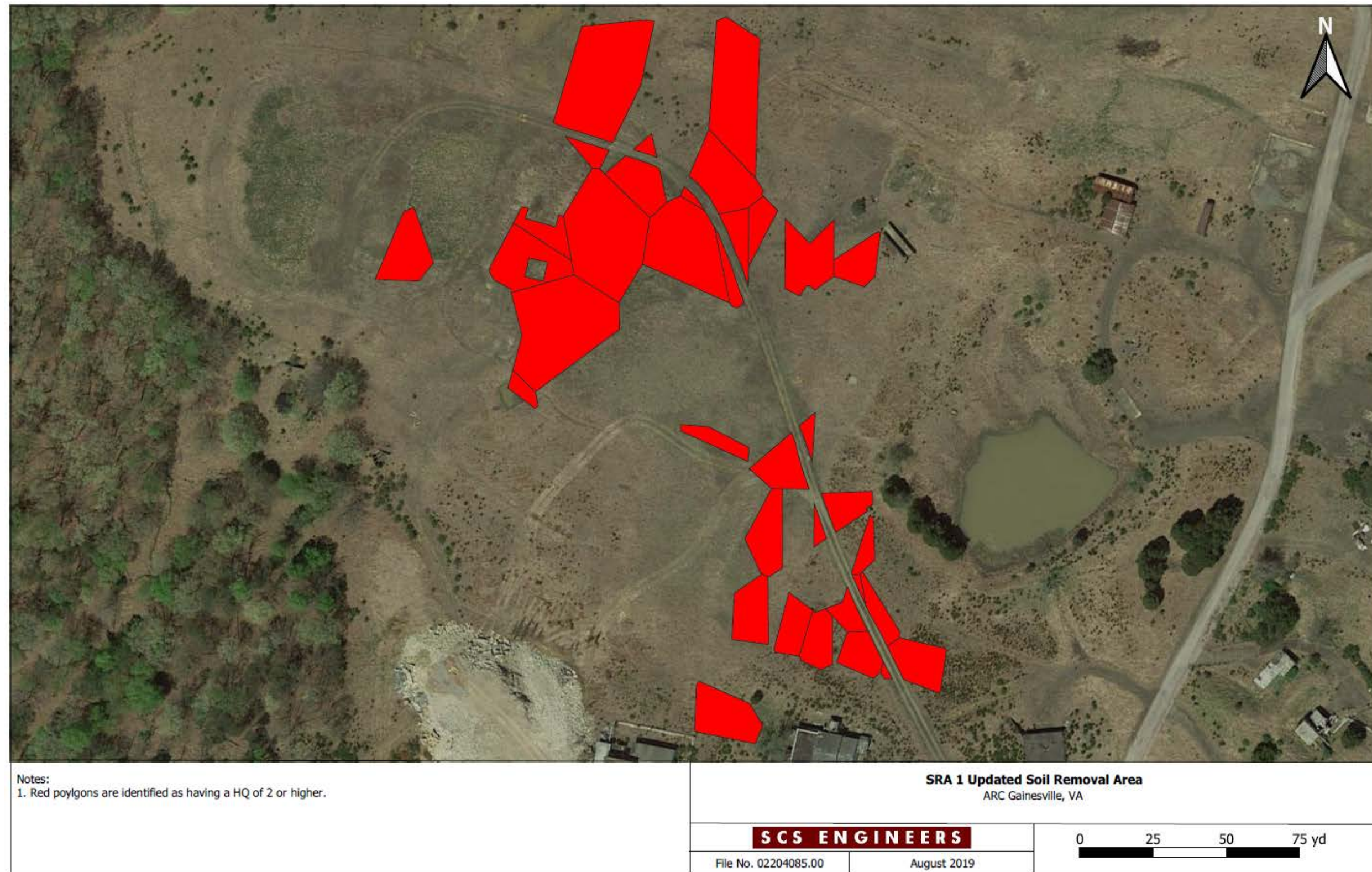


Figure 6. SRA 1 Updated Soil Removal Area



## SRA 2

SRA 2 is located on the western portion of the Western Landbay. A total of 10 soil samples were collected from SRA1. **Table 4** presents soil sample chemical analysis for soil samples collected from SRA 2 by SCS. **Figure 7** illustrates the location of supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 7** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 8** illustrates the proposed refined SRA 2 soil removal polygons in red.

Table 4. SRA2 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
B31S-1	9/7/2018	ND	NA
B31W-2	9/7/2018	ND	NA
B31N-3	9/7/2018	ND	NA
B32N-1	9/5/2018	1.65	NA
B32SW-2	9/5/2018	ND	NA
B32NW-3	9/5/2018	ND	NA
B32SE-4	9/7/2018	0.814	NA
SRA2-15	6/10/2019	ND	NA
SRA2-16	6/10/2019	ND	NA
SRA2-17	6/10/2019	ND	NA

Figure 7. SRA 2 Polygon Refinement Map

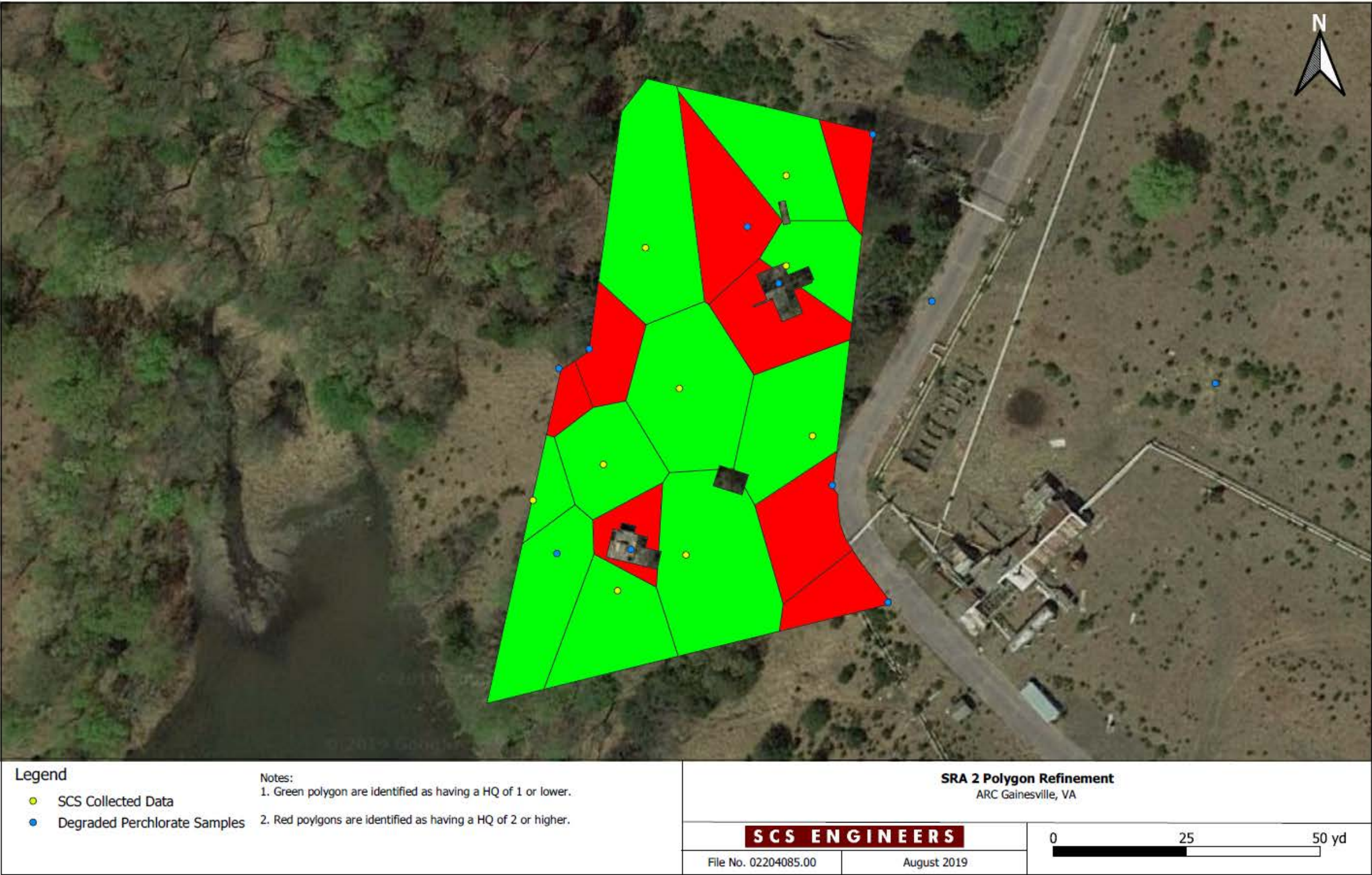


Figure 8. SRA 2 Updated Soil Removal Area



### SRA 3

SRA 3 is located on the western portion of the Western Landbay. A total of 9 soil samples were collected from SRA3. **Table 5** presents soil sample chemical analysis for soil samples collected from SRA 3 by SCS. **Figure 9** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 9** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 10** illustrates the proposed refined SRA 3 soil removal polygons in red.

Table 5. SRA 3 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA3-18	6/11/2019	ND	NA
SRA3-19	6/11/2019	ND	NA
SRA3-20	6/11/2019	ND	NA
SRA3-21	6/11/2019	ND	NA
SRA6-22	6/11/2019	ND	NA
SRA3-18	6/11/2019	ND	NA
SRA3-19	6/11/2019	ND	NA
SRA3-20	6/11/2019	ND	NA
SRA3-21	6/11/2019	ND	NA

Figure 9. SRA 3 Polygon Refinement Map

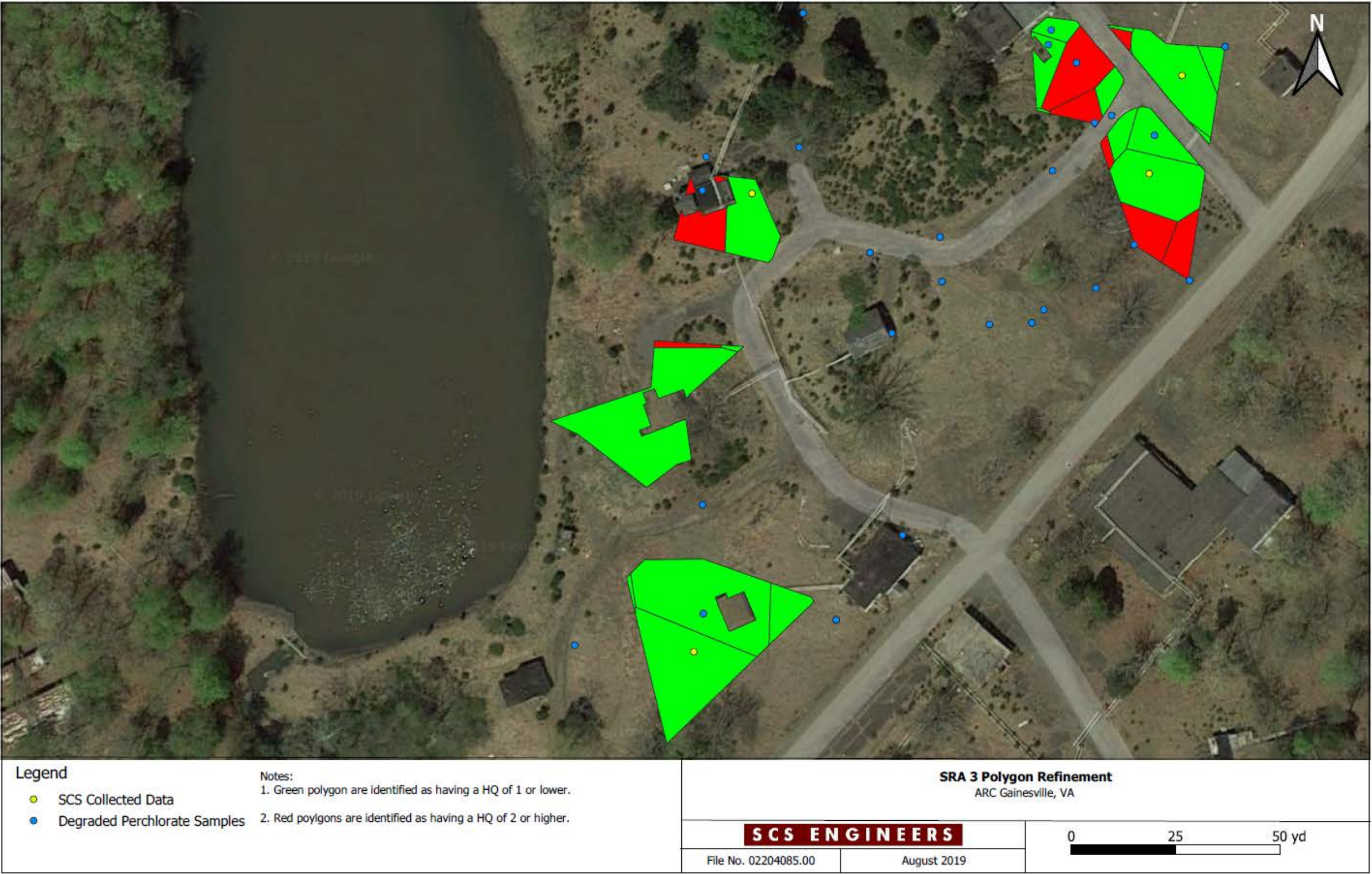


Figure 10. SRA 3 Updated Soil Removal Area



## SRA 4

SRA 4 is located on the central portion of the Western Landbay. A total of 4 soil samples were collected from SRA4. **Table 6** presents soil sample chemical analysis for soil samples collected from SRA 4 by SCS. **Figure 11** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 11** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 12** illustrates the proposed refined SRA 4 soil removal polygons in red.

In June of 2012, the remnant slab of Building 43 was removed to facilitate the excavation of soils beneath the slab of Building 43. These soils were excavated in October of 2012. The portion of the polygon remaining in SRA 4 following refinement (**Figure 10**) reflects the soils previously excavated from the Building 43 area.

Table 6. SRA 4 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA4-30	6/12/2019	ND	NA
SRA4-31	6/12/2019	ND	NA
SRA4-32	6/12/2019	ND	NA
SRA4-33	6/12/2019	ND	NA

Figure 11. SRA 4 Polygon Refinement Map

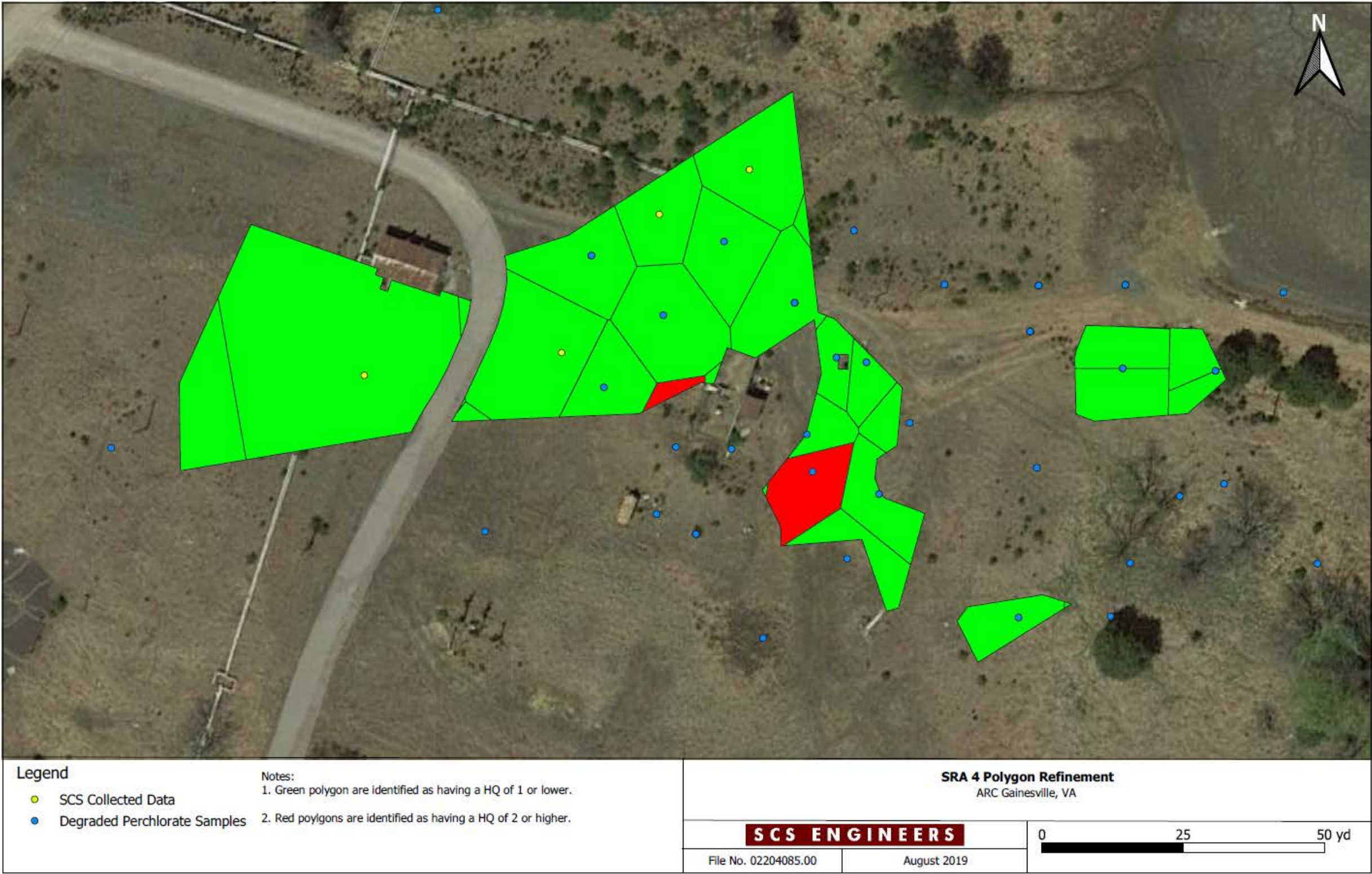


Figure 12. SRA 4 Updated Soil Removal Area



## SRA 5

SRA 5 is located on the central portion of the Western Landbay. A total of 4 soil samples were collected from SRA 5. **Table 7** presents soil sample chemical analysis for soil samples collected from SRA 5 by SCS. **Figure 13** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 13** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 14** illustrates the proposed refined SRA5 soil removal polygons in red.

Table 7. SRA 5 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA5-24	6/12/2019	ND	NA
SRA5-25	6/12/2019	ND	NA
SRA5-26	6/12/2019	0.564	NA
SRA5-27	6/12/2019	0.598	NA

Figure 13. SRA 5 Polygon Refinement Map



Figure 14. SRA 5 Updated Soil Removal Area



## SRA 6

SRA 6 is located on the central portion of the Western Landbay. A total of 2 soil samples were collected from SRA4. **Table 8** presents soil sample chemical analysis for soil samples collected from SRA 6 by SCS. **Figure 15** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 15** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 16** illustrates the proposed refined SRA 6 soil removal polygons in red.

Table 8. SRA 6 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA6-22	6/11/2019	ND	NA
SRA6-23	6/11/2019	ND	NA

Figure 15. SRA 6 Polygon Refinement Map

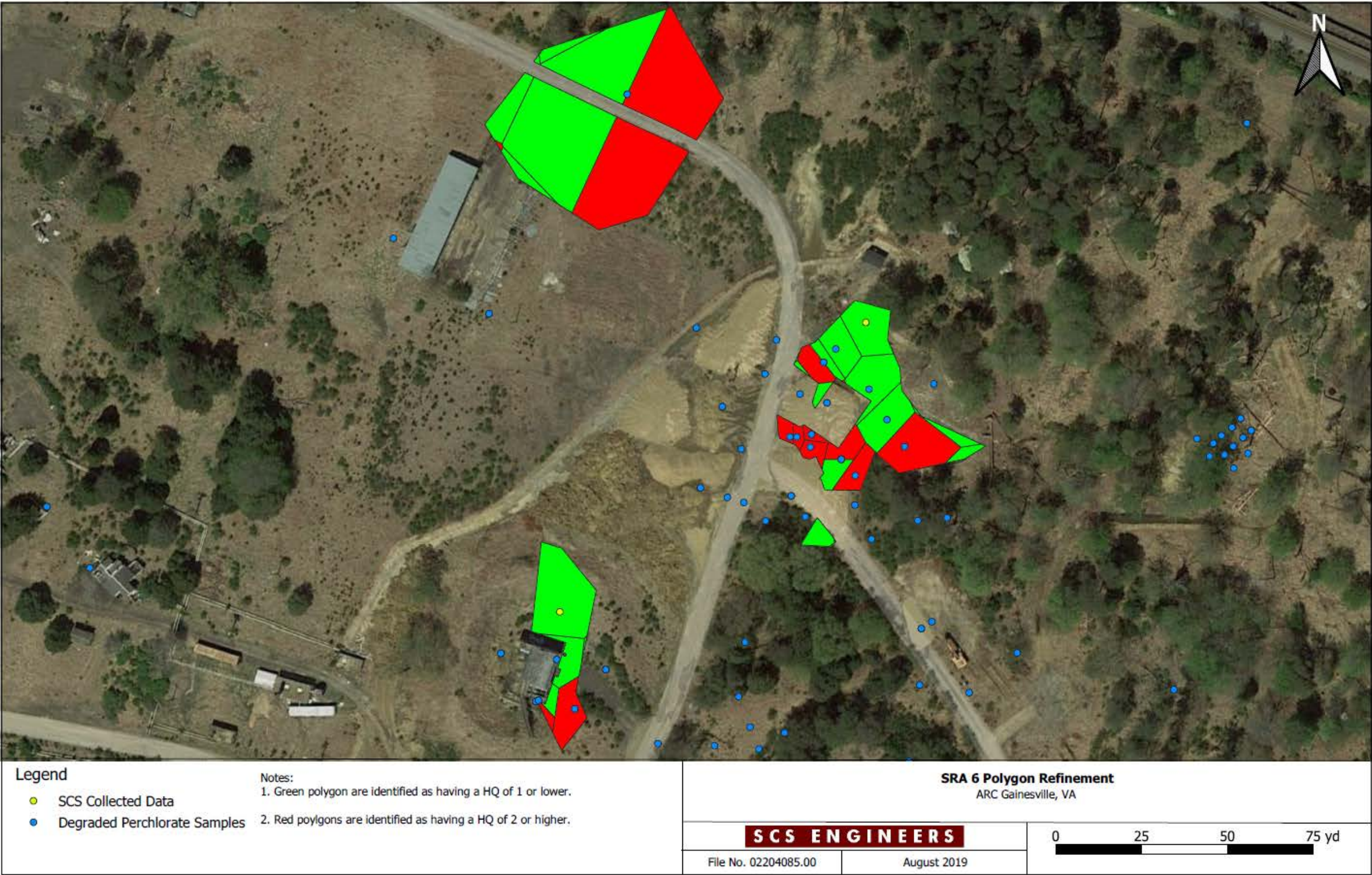
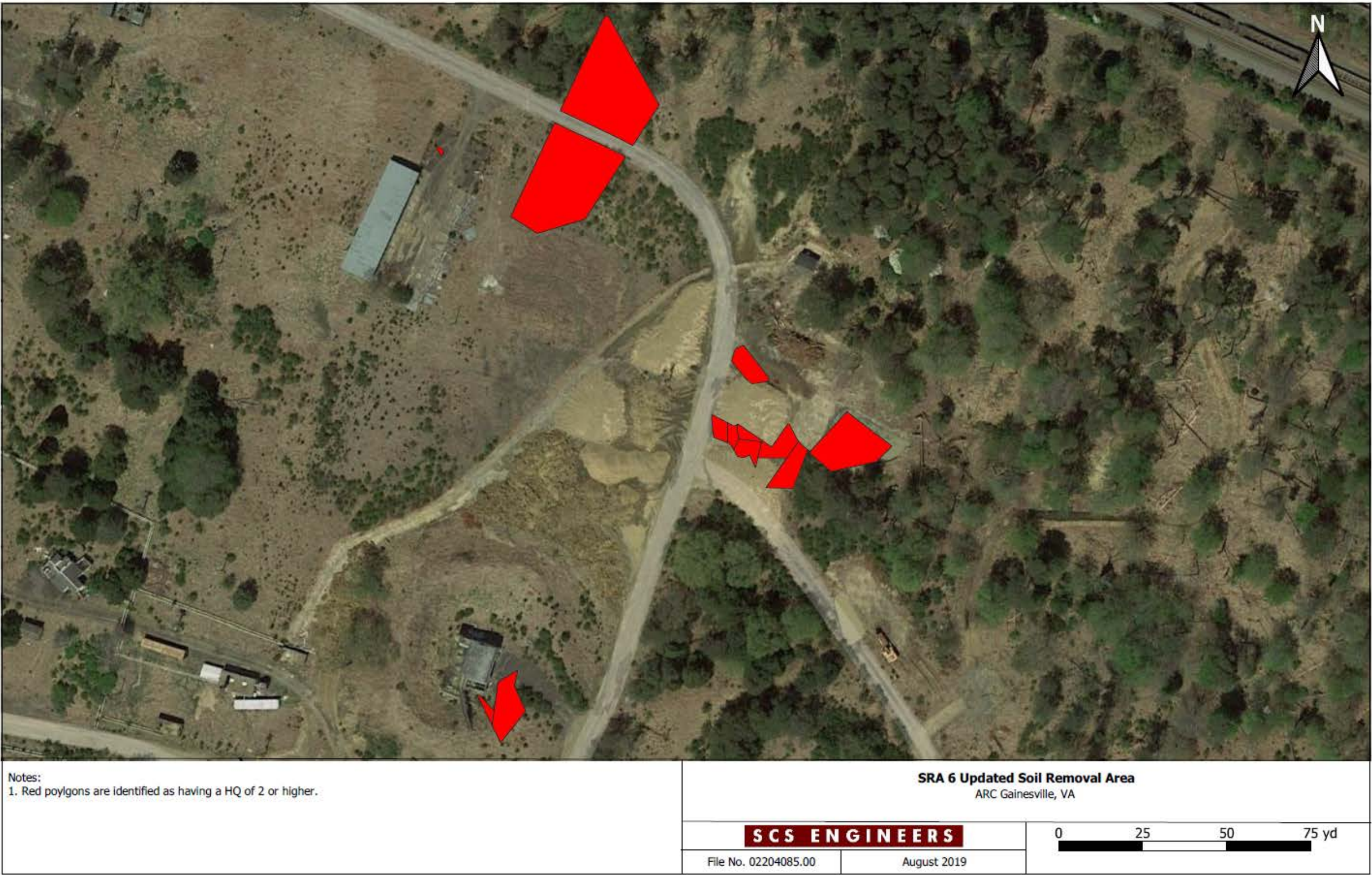


Figure 16. SRA 6 Updated Soil Removal Area



## SRA 8

SRA 8 is located on the central portion of the Western Landbay. A total of 5 soil samples were collected from SRA4. **Table 9** presents soil sample chemical analysis for soil samples collected from SRA 8 by SCS. **Figure 17** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 17** illustrates polygons with an HQ of 2 or more in red and polygons with an HQ of 1 or NA in green. **Figure 18** illustrates the proposed refined SRA 8 soil removal polygons in red.

Table 9. SRA 8 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA8-34	6/13/2019	ND	NA
SRA8-35	6/13/2019	ND	NA
SRA8-36	6/13/2019	ND	NA
SRA8-37	6/13/2019	ND	NA
SRA8-38	6/13/2019	ND	NA

Figure 17. SRA 8 Polygon Refinement Map

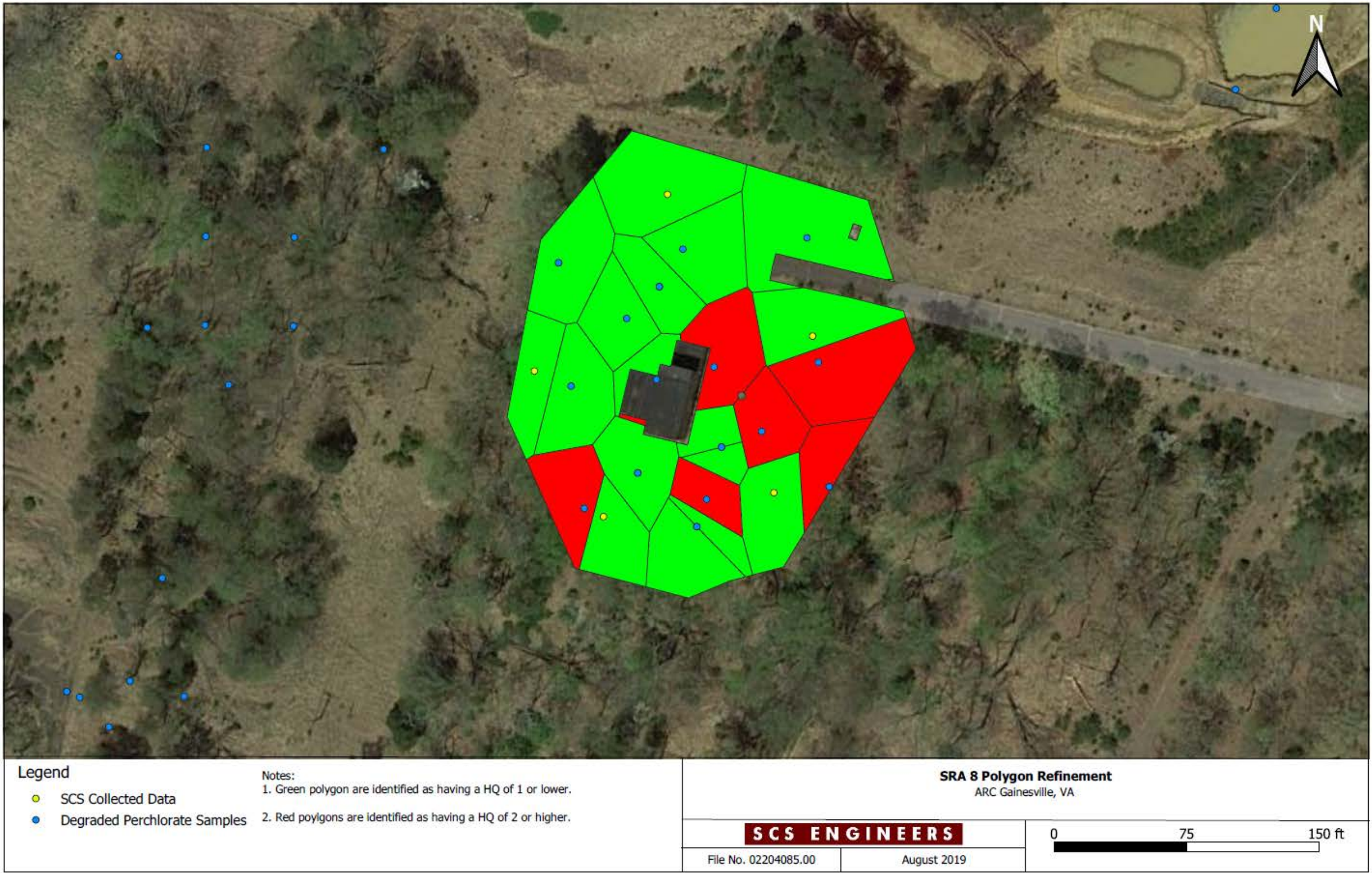


Figure 18. SRA 8 Updated Soil Removal Area



## SRA 9

SRA 9 is located on the central portion of the Western Landbay. A total of 3 soil samples were collected from SRA4. **Table 10** presents soil sample chemical analysis for soil samples collected from SRA 9 by SCS. **Figure 19** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 19** illustrates polygons with an HQ of 1 or NA in green. SRA 9 has been totally eliminated as a results of the polygon refinement.

Table 10. SRA 9 Perchlorate Soil Chemical Analysis

Sample ID	Date	Concentration	Hazard Quotient
SRA10-39	6/13/2019	0.698	NA
SRA10-40	6/13/2019	ND	NA
SRA10-41	6/13/2019	ND	NA
Note: These samples should be identified as SRA9. The sample IDs were erroneously noted as SRA10.			

Figure 19. SRA 9 Polygon Refinement Map



## PCB SOIL SAMPLING

PCB soil sampling was conducted in a number of locations on the Western Landbay. A total of 18 PCB soil samples were collected. **Table 9** presents soil sample chemical analysis for soil samples collected from SRA 9 by SCS. **Figure 20** illustrates the location of the supplemental soil borings completed by SCS and previous soil boring locations used by Integral to define the sub-polygons. Additionally, **Figure 20** illustrates polygons containing a hazard quotient for PCB concentrations of 2 or higher in red and polygons containing a hazard quotient of 1 or NA for PCB concentrations in green. **Figure 21** illustrates the new proposed PCB soil removal polygons in red. A new polygon was identified to the south of SRA 3. This polygon was established due to a concentration of PCBs of 6.61 mg/kg, resulting in a Hazard Quotient of 2.

Table 11. PCB Soil Chemical Analysis

ID	Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Hazard Quotient
4-1	11/6/2018	ND	ND	ND	ND	0.360	ND	ND	NA
4-2	11/6/2018	ND	ND	ND	ND	ND	ND	ND	NA
4-3	11/6/2018	ND	ND	ND	ND	ND	ND	ND	NA
4-4	11/6/2018	ND	ND	ND	ND	ND	ND	ND	NA
4-5	11/6/2018	ND	ND	ND	ND	ND	ND	ND	NA
4-6	11/6/2018	ND	ND	ND	ND	ND	ND	ND	NA
5-1	11/1/2018	ND	ND	ND	ND	0.032	ND	ND	NA
5-2	11/1/2018	ND	ND	ND	ND	0.166	ND	ND	NA
5-3	11/1/2018	ND	ND	ND	ND	0.63	ND	ND	NA
5-4	11/1/2018	ND	ND	ND	ND	1.32	ND	ND	NA
5-5	11/1/2018	ND	ND	ND	ND	0.207	ND	ND	NA
5-6	11/1/2018	ND	ND	ND	ND	0.57	ND	ND	NA
5-7	11/1/2018	ND	ND	ND	ND	ND	ND	ND	NA
5-8	11/1/2018	ND	ND	ND	ND	ND	ND	ND	NA
5-9	11/1/2018	ND	ND	ND	ND	0.159	ND	ND	NA
5-10	11/1/2018	ND	ND	ND	ND	ND	ND	ND	NA
5-11	11/1/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-1	11/2/2018	ND	ND	ND	ND	1.16	ND	ND	NA
6-2	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-3	11/2/2018	ND	ND	ND	ND	0.056	ND	ND	NA
6-4	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-5	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-6	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-7	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-8	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-9	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-10	11/2/2018	ND	ND	ND	ND	3.74	ND	ND	1
6-11	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-12	11/2/2018	ND	ND	ND	ND	ND	0.823	ND	NA
6-13	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-14	11/2/2018	ND	ND	ND	ND	ND	0.404	ND	NA
6-15	11/2/2018	ND	ND	ND	ND	6.61	ND	ND	2
6-16	11/2/2018	ND	ND	ND	ND	ND	1.11	ND	NA
6-17	11/2/2018	ND	ND	ND	ND	ND	ND	ND	NA
6-18	11/2/2018	ND	ND	ND	ND	ND	0.337	ND	NA
<b>Note:</b> Concentrations are presented in mg/kg. A HQ of 0 is presented as NA.									

Figure 20. PCB Polygon Refinement Map

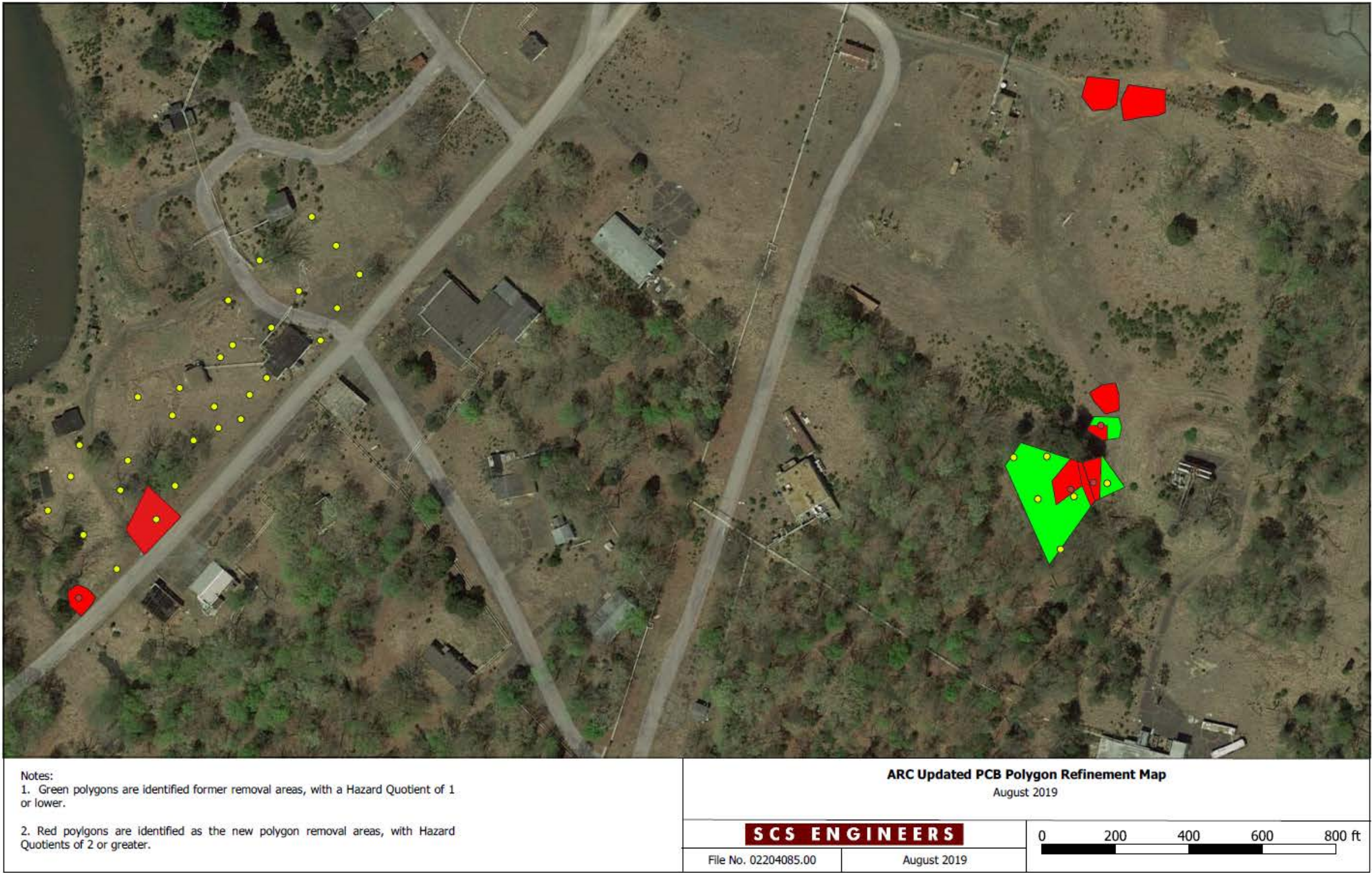


Figure 21. SRA 9 Updated PCB Soil Removal Area




## 5 THIESSEN POLYGON REFINEMENT

Thiessen polygon refinement was performed by adding the supplemental sampling data to previous Integral and Environ data sets, degrading the perchlorate concentrations following the methodology presented in Integral (2016) and utilizing GIS software to further partition the existing SRAs into smaller polygons. Updated polygons were mapped showing areas with HQs of 2 or more based on the homegrown produce pathway.

Additionally, PCB polygons were refined based on historical data and supplemental sample data collected by SCS. Following the methodology presented in Environ (2012) and using the GIS software, the polygons presenting HQs of 2 or more via the residential direct contact pathway were refined. Since one of the supplemental soil samples collected by SCS contained elevated PCBs (HQ of 2) and was from an area not previously identified as requiring soil management, a new polygon is shown in addition to the refined polygons for PCBs.

## 6 REFERENCES

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- Integral Consulting, Inc., 2017. Emails and attachments from Judi Durda to Mike McLaughlin dated 11/22/17 and from Jake Wilhelm to Mike McLaughlin dated 11/28/17 on subject of Polygon Coordinates.
- SCS Engineers. 2017. Draft Soil Management Plan, Former ARC Facility, Gainesville, Virginia. September 8.
- .



## Appendix A

### Chemical Analysis



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## Certificate of Analysis

### Final Report

Laboratory Order ID 18K0387

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 300  
Reston, VA 20190

Date Received: November 8, 2018 10:25  
Date Issued: November 15, 2018 18:24  
Project Number: 02204085.00  
Purchase Order:

Submitted To: Austin Drooger

Client Site I.D.: ARC - Gainesville, VA

Enclosed are the results of analyses for samples received by the laboratory on 11/08/2018 10:25. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads "Ted Soyars".

Ted Soyars  
Laboratory Manager

#### End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.







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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190  
Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger  
Project Number: 02204085.00  
Client Site I.D.: ARC - Gainesville, VA  
Purchase Order:

### ANALYTICAL REPORT FOR SAMPLES

Laboratory Order ID 18K0387

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
4-1	18K0387-01	Solids	11/06/2018 12:00	11/08/2018 10:25
4-2	18K0387-02	Solids	11/06/2018 12:30	11/08/2018 10:25
4-3	18K0387-03	Solids	11/06/2018 13:00	11/08/2018 10:25
4-4	18K0387-04	Solids	11/06/2018 13:30	11/08/2018 10:25
4-5	18K0387-05	Solids	11/06/2018 14:00	11/08/2018 10:25
4-6	18K0387-06	Solids	11/06/2018 14:30	11/08/2018 10:25
5-1	18K0387-07	Solids	11/01/2018 12:10	11/08/2018 10:25
5-2	18K0387-08	Solids	11/01/2018 12:40	11/08/2018 10:25
5-3	18K0387-09	Solids	11/01/2018 12:55	11/08/2018 10:25
5-4	18K0387-10	Solids	11/01/2018 10:30	11/08/2018 10:25
5-5	18K0387-11	Solids	11/01/2018 10:40	11/08/2018 10:25
5-6	18K0387-12	Solids	11/01/2018 10:50	11/08/2018 10:25
5-7	18K0387-13	Solids	11/01/2018 11:00	11/08/2018 10:25
5-8	18K0387-14	Solids	11/01/2018 11:20	11/08/2018 10:25
5-9	18K0387-15	Solids	11/01/2018 11:40	11/08/2018 10:25
5-10	18K0387-16	Solids	11/01/2018 11:40	11/08/2018 10:25
5-11	18K0387-17	Solids	11/01/2018 11:50	11/08/2018 10:25
6-1	18K0387-18	Solids	11/02/2018 09:00	11/08/2018 10:25
6-2	18K0387-19	Solids	11/02/2018 09:30	11/08/2018 10:25
6-3	18K0387-20	Solids	11/02/2018 09:45	11/08/2018 10:25
6-4	18K0387-21	Solids	11/02/2018 09:55	11/08/2018 10:25
6-5	18K0387-22	Solids	11/02/2018 10:15	11/08/2018 10:25
6-6	18K0387-23	Solids	11/02/2018 10:30	11/08/2018 10:25



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190  
Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger  
Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA  
Purchase Order:

### ANALYTICAL REPORT FOR SAMPLES

Laboratory Order ID 18K0387

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
6-7	18K0387-24	Solids	11/02/2018 10:40	11/08/2018 10:25
6-8	18K0387-25	Solids	11/02/2018 11:00	11/08/2018 10:25
6-9	18K0387-26	Solids	11/02/2018 11:20	11/08/2018 10:25
6-10	18K0387-27	Solids	11/02/2018 11:40	11/08/2018 10:25
6-11	18K0387-28	Solids	11/02/2018 12:00	11/08/2018 10:25
6-12	18K0387-29	Solids	11/02/2018 12:15	11/08/2018 10:25
6-13	18K0387-30	Solids	11/02/2018 12:30	11/08/2018 10:25
6-14	18K0387-31	Solids	11/02/2018 12:40	11/08/2018 10:25
6-15	18K0387-32	Solids	11/02/2018 12:50	11/08/2018 10:25
6-16	18K0387-33	Solids	11/02/2018 13:00	11/08/2018 10:25
6-17	18K0387-34	Solids	11/02/2018 13:10	11/08/2018 10:25
6-18	18K0387-35	Solids	11/02/2018 13:20	11/08/2018 10:25

PCB results have been calculated based on dry weight.



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 30  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 4-1

Laboratory Sample ID: 18K0387-01

Grab Date/Time: 11/06/2018 12:00

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
PCB as Aroclor 1221	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
PCB as Aroclor 1232	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
PCB as Aroclor 1242	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
<b>PCB as Aroclor 1248</b>	01RE1	SW8082A	<b>0.360 mg/kg dry</b>		0.133	1	11/14/18 09:25	11/15/18 12:20	HLM
PCB as Aroclor 1254	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
PCB as Aroclor 1260	01	SW8082A	<0.133 mg/kg dry		0.133	1	11/14/18 09:25	11/14/18 17:36	HLM
Surr: DCB	01	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 17:36	HLM
Surr: TCMX	01	SW8082A	42.5 %		30-105		11/14/18 09:25	11/14/18 17:36	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	01	SM18 2540G	72.9 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D.		4-2		Laboratory Sample ID:				18K0387-02	
Grab Date/Time:		11/06/2018 12:30							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1221	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1232	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1242	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1248	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1254	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
PCB as Aroclor 1260	02	SW8082A	<0.141 mg/kg dry		0.141	1	11/14/18 09:25	11/14/18 17:55	HLM
Surr: DCB	02	SW8082A	67.5 %		30-105		11/14/18 09:25	11/14/18 17:55	HLM
Surr: TCMX	02	SW8082A	62.5 %		30-105		11/14/18 09:25	11/14/18 17:55	HLM
Wet Chemistry Analysis									
Percent Solids	02	SM18 2540G	69.6 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190  
Date Issued: 11/15/2018 18:24  
Submitted To: Austin Drooger  
Project Number: 02204085.00  
Client Site I.D.: ARC - Gainesville, VA  
Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 4-3

Laboratory Sample ID: 18K0387-03

Grab Date/Time: 11/06/2018 13:00

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1221	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1232	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1242	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1248	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1254	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
PCB as Aroclor 1260	03	SW8082A	<0.135 mg/kg dry		0.135	1	11/14/18 09:25	11/14/18 18:13	HLM
Surr: DCB	03	SW8082A	45.0 %		30-105		11/14/18 09:25	11/14/18 18:13	HLM
Surr: TCMX	03	SW8082A	52.5 %		30-105		11/14/18 09:25	11/14/18 18:13	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	03	SM18 2540G	73.4 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 4-4

Laboratory Sample ID: 18K0387-04

Grab Date/Time: 11/06/2018 13:30

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1221	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1232	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1242	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1248	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1254	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
PCB as Aroclor 1260	04	SW8082A	<0.138 mg/kg dry		0.138	1	11/14/18 09:25	11/14/18 18:32	HLM
Surr: DCB	04	SW8082A	52.5 %		30-105		11/14/18 09:25	11/14/18 18:32	HLM
Surr: TCMX	04	SW8082A	57.5 %		30-105		11/14/18 09:25	11/14/18 18:32	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	04	SM18 2540G	72.3 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 3I  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 4-5				Laboratory Sample ID: 18K0387-05					
Grab Date/Time: 11/06/2018 14:00				Field pH:					
Field Residual Cl:									
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1221	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1232	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1242	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1248	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1254	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
PCB as Aroclor 1260	05	SW8082A	<0.127 mg/kg dry		0.127	1	11/14/18 09:25	11/14/18 18:50	HLM
Surr: DCB	05	SW8082A	67.5 %		30-105		11/14/18 09:25	11/14/18 18:50	HLM
Surr: TCMX	05	SW8082A	65.0 %		30-105		11/14/18 09:25	11/14/18 18:50	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	05	SM18 2540G	78.4 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 30  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 4-6 Laboratory Sample ID: 18K0387-06

Grab Date/Time: 11/06/2018 14:30

Field Residual Cl: Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1221	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1232	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1242	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1248	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1254	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
PCB as Aroclor 1260	06	SW8082A	<0.128 mg/kg dry		0.128	1	11/14/18 09:25	11/14/18 19:09	HLM
Surr: DCB	06	SW8082A	62.5 %		30-105		11/14/18 09:25	11/14/18 19:09	HLM
Surr: TCMX	06	SW8082A	60.0 %		30-105		11/14/18 09:25	11/14/18 19:09	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	06	SM18 2540G	76.7 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190  
Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger  
Project Number: 02204085.00  
Client Site I.D.: ARC - Gainesville, VA  
Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-1

Laboratory Sample ID: 18K0387-07

Grab Date/Time: 11/01/2018 12:10

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
PCB as Aroclor 1221	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
PCB as Aroclor 1232	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
PCB as Aroclor 1242	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
<b>PCB as Aroclor 1248</b>	07RE1	SW8082A	<b>0.032 mg/kg dry</b>		0.024	1	11/14/18 09:25	11/15/18 12:41	HLM
PCB as Aroclor 1254	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
PCB as Aroclor 1260	07	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 19:27	HLM
Surr: DCB	07	SW8082A	57.5 %		30-105		11/14/18 09:25	11/14/18 19:27	HLM
Surr: TCMX	07	SW8082A	57.5 %		30-105		11/14/18 09:25	11/14/18 19:27	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	07	SM18 2540G	78.5 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-2

Laboratory Sample ID: 18K0387-08

Grab Date/Time: 11/01/2018 12:40

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
PCB as Aroclor 1221	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
PCB as Aroclor 1232	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
PCB as Aroclor 1242	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
<b>PCB as Aroclor 1248</b>	08RE1	SW8082A	<b>0.166 mg/kg dry</b>		0.114	1	11/14/18 09:25	11/15/18 13:03	HLM
PCB as Aroclor 1254	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
PCB as Aroclor 1260	08	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 19:46	HLM
Surr: DCB	08	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 19:46	HLM
Surr: TCMX	08	SW8082A	65.0 %		30-105		11/14/18 09:25	11/14/18 19:46	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	08	SM18 2540G	79.0 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D.		5-3		Laboratory Sample ID:				18K0387-09	
Grab Date/Time:		11/01/2018 12:55							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
PCB as Aroclor 1221	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
PCB as Aroclor 1232	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
PCB as Aroclor 1242	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
PCB as Aroclor 1248	09RE1	SW8082A	0.630 mg/kg dry		0.485	10	11/14/18 09:25	11/15/18 13:24	HLM
PCB as Aroclor 1254	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
PCB as Aroclor 1260	09	SW8082A	<0.100 mg/kg dry		0.100	1	11/14/18 09:25	11/14/18 20:04	HLM
Surr: DCB	09	SW8082A	62.5 %		30-105		11/14/18 09:25	11/14/18 20:04	HLM
Surr: TCMX	09	SW8082A	75.0 %		30-105		11/14/18 09:25	11/14/18 20:04	HLM
Wet Chemistry Analysis									
Percent Solids	09	SM18 2540G	90.2 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-4

Laboratory Sample ID: 18K0387-10

Grab Date/Time: 11/01/2018 10:30

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
PCB as Aroclor 1221	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
PCB as Aroclor 1232	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
PCB as Aroclor 1242	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
<b>PCB as Aroclor 1248</b>	10RE1	SW8082A	<b>1.32 mg/kg dry</b>		0.910	5	11/14/18 09:25	11/15/18 13:46	HLM
PCB as Aroclor 1254	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
PCB as Aroclor 1260	10	SW8082A	<0.182 mg/kg dry		0.182	1	11/14/18 09:25	11/14/18 20:23	HLM
Surr: DCB	10	SW8082A	17.5 %	S	30-105		11/14/18 09:25	11/14/18 20:23	HLM
Surr: TCMX	10	SW8082A	25.0 %	S	30-105		11/14/18 09:25	11/14/18 20:23	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	10	SM18 2540G	53.2 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-5

Laboratory Sample ID: 18K0387-11

Grab Date/Time: 11/01/2018 10:40

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
PCB as Aroclor 1221	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
PCB as Aroclor 1232	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
PCB as Aroclor 1242	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
<b>PCB as Aroclor 1248</b>	11RE1	SW8082A	<b>0.207 mg/kg dry</b>		0.132	1	11/14/18 09:25	11/15/18 14:07	HLM
PCB as Aroclor 1254	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
PCB as Aroclor 1260	11	SW8082A	<0.132 mg/kg dry		0.132	1	11/14/18 09:25	11/14/18 20:41	HLM
Surr: DCB	11	SW8082A	57.5 %		30-105		11/14/18 09:25	11/14/18 20:41	HLM
Surr: TCMX	11	SW8082A	60.0 %		30-105		11/14/18 09:25	11/14/18 20:41	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	11	SM18 2540G	74.8 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-6

Laboratory Sample ID: 18K0387-12

Grab Date/Time: 11/01/2018 10:50

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
PCB as Aroclor 1221	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
PCB as Aroclor 1232	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
PCB as Aroclor 1242	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
<b>PCB as Aroclor 1248</b>	12RE1	SW8082A	<b>0.057 mg/kg dry</b>		0.023	1	11/14/18 09:25	11/15/18 14:28	HLM
PCB as Aroclor 1254	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
PCB as Aroclor 1260	12	SW8082A	<0.114 mg/kg dry		0.114	1	11/14/18 09:25	11/14/18 21:00	HLM
Surr: DCB	12	SW8082A	72.5 %		30-105		11/14/18 09:25	11/14/18 21:00	HLM
Surr: TCMX	12	SW8082A	82.5 %		30-105		11/14/18 09:25	11/14/18 21:00	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	12	SM18 2540G	86.1 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-7

Laboratory Sample ID: 18K0387-13

Grab Date/Time: 11/01/2018 11:00

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1221	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1232	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1242	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1248	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1254	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
PCB as Aroclor 1260	13	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 09:25	11/14/18 21:18	HLM
Surr: DCB	13	SW8082A	70.0 %		30-105		11/14/18 09:25	11/14/18 21:18	HLM
Surr: TCMX	13	SW8082A	77.5 %		30-105		11/14/18 09:25	11/14/18 21:18	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	13	SM18 2540G	79.3 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 3I  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-8

Laboratory Sample ID: 18K0387-14

Grab Date/Time: 11/01/2018 11:20

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1221	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1232	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1242	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1248	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1254	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
PCB as Aroclor 1260	14	SW8082A	<0.125 mg/kg dry		0.125	1	11/14/18 09:25	11/14/18 21:37	HLM
Surr: DCB	14	SW8082A	42.5 %		30-105		11/14/18 09:25	11/14/18 21:37	HLM
Surr: TCMX	14	SW8082A	50.0 %		30-105		11/14/18 09:25	11/14/18 21:37	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	14	SM18 2540G	78.3 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 30  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-9				Laboratory Sample ID: 18K0387-15					
Grab Date/Time:		11/01/2018 11:40							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
PCB as Aroclor 1221	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
PCB as Aroclor 1232	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
PCB as Aroclor 1242	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
PCB as Aroclor 1248	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
PCB as Aroclor 1254	15RE1	SW8082A	0.159 mg/kg dry		0.099	5	11/14/18 09:25	11/15/18 14:50	HLM
PCB as Aroclor 1260	15	SW8082A	<0.119 mg/kg dry		0.119	1	11/14/18 09:25	11/14/18 21:55	HLM
Surr: DCB	15	SW8082A	50.0 %		30-105		11/14/18 09:25	11/14/18 21:55	HLM
Surr: TCMX	15	SW8082A	72.5 %		30-105		11/14/18 09:25	11/14/18 21:55	HLM
Wet Chemistry Analysis									
Percent Solids	15	SM18 2540G	77.1 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-10

Laboratory Sample ID: 18K0387-16

Grab Date/Time: 11/01/2018 11:40

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1221	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1232	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1242	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1248	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1254	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
PCB as Aroclor 1260	16	SW8082A	<0.131 mg/kg dry		0.131	1	11/14/18 09:25	11/14/18 22:14	HLM
Surr: DCB	16	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 22:14	HLM
Surr: TCMX	16	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 22:14	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	16	SM18 2540G	75.9 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

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Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 5-11

Laboratory Sample ID: 18K0387-17

Grab Date/Time: 11/01/2018 11:50

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1221	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1232	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1242	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1248	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1254	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
PCB as Aroclor 1260	17	SW8082A	<0.118 mg/kg dry		0.118	1	11/14/18 09:25	11/14/18 22:32	HLM
Surr: DCB	17	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 22:32	HLM
Surr: TCMX	17	SW8082A	65.0 %		30-105		11/14/18 09:25	11/14/18 22:32	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	17	SM18 2540G	82.9 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D.		6-1		Laboratory Sample ID:				18K0387-18	
Grab Date/Time:		11/02/2018 09:00							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
PCB as Aroclor 1221	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
PCB as Aroclor 1232	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
PCB as Aroclor 1242	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
PCB as Aroclor 1248	18RE1	SW8082A	1.16 mg/kg dry		0.643	10	11/14/18 09:25	11/15/18 15:11	HLM
PCB as Aroclor 1254	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
PCB as Aroclor 1260	18	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 09:25	11/14/18 22:51	HLM
Surr: DCB	18	SW8082A	50.0 %		30-105		11/14/18 09:25	11/14/18 22:51	HLM
Surr: TCMX	18	SW8082A	55.0 %		30-105		11/14/18 09:25	11/14/18 22:51	HLM
Wet Chemistry Analysis									
Percent Solids	18	SM18 2540G	75.0 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-2				Laboratory Sample ID: 18K0387-19					
Grab Date/Time: 11/02/2018 09:30				Field pH:					
Field Residual Cl:									
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1221	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1232	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1242	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1248	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1254	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
PCB as Aroclor 1260	19	SW8082A	<0.129 mg/kg dry		0.129	1	11/14/18 12:20	11/15/18 00:42	HLM
Surr: DCB	19	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 00:42	HLM
Surr: TCMX	19	SW8082A	50.0 %		30-105		11/14/18 12:20	11/15/18 00:42	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	19	SM18 2540G	74.6 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-3

Laboratory Sample ID: 18K0387-20

Grab Date/Time: 11/02/2018 09:45

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
PCB as Aroclor 1221	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
PCB as Aroclor 1232	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
PCB as Aroclor 1242	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
<b>PCB as Aroclor 1248</b>	20RE1	SW8082A	<b>0.056 mg/kg dry</b>		0.029	1	11/14/18 12:20	11/15/18 15:33	HLM
PCB as Aroclor 1254	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
PCB as Aroclor 1260	20	SW8082A	<0.146 mg/kg dry		0.146	1	11/14/18 12:20	11/15/18 01:00	HLM
Surr: DCB	20	SW8082A	30.0 %		30-105		11/14/18 12:20	11/15/18 01:00	HLM
Surr: TCMX	20	SW8082A	42.5 %		30-105		11/14/18 12:20	11/15/18 01:00	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	20	SM18 2540G	66.7 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-4 Laboratory Sample ID: 18K0387-21

Grab Date/Time: 11/02/2018 09:55

Field Residual Cl: Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1221	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1232	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1242	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1248	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1254	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
PCB as Aroclor 1260	21	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:19	HLM
Surr: DCB	21	SW8082A	60.0 %		30-105		11/14/18 12:20	11/15/18 01:19	HLM
Surr: TCMX	21	SW8082A	52.5 %		30-105		11/14/18 12:20	11/15/18 01:19	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	21	SM18 2540G	76.3 %		0.10	1	11/14/18 12:48	11/14/18 12:48	PMP



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D.		6-5		Laboratory Sample ID:				18K0387-22	
Grab Date/Time:		11/02/2018 10:15							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1221	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1232	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1242	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1248	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1254	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
PCB as Aroclor 1260	22	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 01:37	HLM
Surr: DCB	22	SW8082A	80.0 %		30-105		11/14/18 12:20	11/15/18 01:37	HLM
Surr: TCMX	22	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 01:37	HLM
Wet Chemistry Analysis									
Percent Solids	22	SM18 2540G	78.9 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-6		Laboratory Sample ID: 18K0387-23							
Grab Date/Time:		11/02/2018 10:30							
Field Residual Cl:		Field pH:							
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1221	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1232	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1242	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1248	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1254	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
PCB as Aroclor 1260	23	SW8082A	<0.112 mg/kg dry		0.112	1	11/14/18 12:20	11/15/18 01:56	HLM
Surr: DCB	23	SW8082A	65.0 %		30-105		11/14/18 12:20	11/15/18 01:56	HLM
Surr: TCMX	23	SW8082A	62.5 %		30-105		11/14/18 12:20	11/15/18 01:56	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	23	SM18 2540G	87.0 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-7				Laboratory Sample ID: 18K0387-24					
Grab Date/Time: 11/02/2018 10:40				Field pH:					
Field Residual Cl:									
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1221	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1232	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1242	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1248	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1254	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
PCB as Aroclor 1260	24	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 02:14	HLM
Surr: DCB	24	SW8082A	65.0 %		30-105		11/14/18 12:20	11/15/18 02:14	HLM
Surr: TCMX	24	SW8082A	50.0 %		30-105		11/14/18 12:20	11/15/18 02:14	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	24	SM18 2540G	75.7 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-8				Laboratory Sample ID: 18K0387-25					
Grab Date/Time: 11/02/2018 11:00				Field pH:					
Field Residual Cl:									
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1221	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1232	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1242	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1248	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1254	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
PCB as Aroclor 1260	25	SW8082A	<0.143 mg/kg dry		0.143	1	11/14/18 12:20	11/15/18 02:33	HLM
Surr: DCB	25	SW8082A	60.0 %		30-105		11/14/18 12:20	11/15/18 02:33	HLM
Surr: TCMX	25	SW8082A	50.0 %		30-105		11/14/18 12:20	11/15/18 02:33	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	25	SM18 2540G	68.5 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-9				Laboratory Sample ID: 18K0387-26					
Grab Date/Time:		11/02/2018 11:20							
Field Residual Cl:				Field pH:					
Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
Organochlorine Pesticides and PCBs by GC/ECD									
PCB as Aroclor 1016	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1221	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1232	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1242	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1248	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1254	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
PCB as Aroclor 1260	26	SW8082A	<0.122 mg/kg dry		0.122	1	11/14/18 12:20	11/15/18 02:51	HLM
Surr: DCB	26	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 02:51	HLM
Surr: TCMX	26	SW8082A	62.5 %		30-105		11/14/18 12:20	11/15/18 02:51	HLM
Wet Chemistry Analysis									
Percent Solids	26	SM18 2540G	81.7 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-10

Laboratory Sample ID: 18K0387-27

Grab Date/Time: 11/02/2018 11:40

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
PCB as Aroclor 1221	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
PCB as Aroclor 1232	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
PCB as Aroclor 1242	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
<b>PCB as Aroclor 1248</b>	27RE1	SW8082A	<b>3.74 mg/kg dry</b>		2.34	100	11/14/18 12:20	11/15/18 15:54	HLM
PCB as Aroclor 1254	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
PCB as Aroclor 1260	27	SW8082A	<0.140 mg/kg dry		0.140	1	11/14/18 12:20	11/15/18 03:10	HLM
Surr: DCB	27	SW8082A	32.5 %		30-105		11/14/18 12:20	11/15/18 03:10	HLM
Surr: TCMX	27	SW8082A	40.0 %		30-105		11/14/18 12:20	11/15/18 03:10	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	27	SM18 2540G	70.6 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-11

Laboratory Sample ID: 18K0387-28

Grab Date/Time: 11/02/2018 12:00

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1221	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1232	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1242	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1248	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1254	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
PCB as Aroclor 1260	28	SW8082A	<0.126 mg/kg dry		0.126	1	11/14/18 12:20	11/15/18 03:28	HLM
Surr: DCB	28	SW8082A	42.5 %		30-105		11/14/18 12:20	11/15/18 03:28	HLM
Surr: TCMX	28	SW8082A	45.0 %		30-105		11/14/18 12:20	11/15/18 03:28	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	28	SM18 2540G	78.9 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-12

Laboratory Sample ID: 18K0387-29

Grab Date/Time: 11/02/2018 12:15

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
PCB as Aroclor 1221	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
PCB as Aroclor 1232	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
PCB as Aroclor 1242	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
PCB as Aroclor 1248	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
<b>PCB as Aroclor 1254</b>	29RE1	SW8082A	<b>0.823 mg/kg dry</b>		0.433	20	11/14/18 12:20	11/15/18 16:37	HLM
PCB as Aroclor 1260	29	SW8082A	<0.130 mg/kg dry		0.130	1	11/14/18 12:20	11/15/18 03:47	HLM
Surr: DCB	29	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 03:47	HLM
Surr: TCMX	29	SW8082A	72.5 %		30-105		11/14/18 12:20	11/15/18 03:47	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	29	SM18 2540G	76.2 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-13

Laboratory Sample ID: 18K0387-30

Grab Date/Time: 11/02/2018 12:30

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1221	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1232	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1242	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1248	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1254	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
PCB as Aroclor 1260	30	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 04:05	HLM
Surr: DCB	30	SW8082A	27.5 %	S	30-105		11/14/18 12:20	11/15/18 04:05	HLM
Surr: TCMX	30	SW8082A	40.0 %		30-105		11/14/18 12:20	11/15/18 04:05	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	30	SM18 2540G	78.8 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-14

Laboratory Sample ID: 18K0387-31

Grab Date/Time: 11/02/2018 12:40

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
PCB as Aroclor 1221	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
PCB as Aroclor 1232	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
PCB as Aroclor 1242	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
PCB as Aroclor 1248	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
<b>PCB as Aroclor 1254</b>	31RE1	SW8082A	<b>0.404 mg/kg dry</b>		0.242	10	11/14/18 12:20	11/15/18 16:24	HLM
PCB as Aroclor 1260	31	SW8082A	<0.121 mg/kg dry		0.121	1	11/14/18 12:20	11/15/18 04:24	HLM
Surr: DCB	31	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 04:24	HLM
Surr: TCMX	31	SW8082A	67.5 %		30-105		11/14/18 12:20	11/15/18 04:24	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	31	SM18 2540G	82.0 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-15

Laboratory Sample ID: 18K0387-32

Grab Date/Time: 11/02/2018 12:50

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
PCB as Aroclor 1221	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
PCB as Aroclor 1232	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
PCB as Aroclor 1242	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
<b>PCB as Aroclor 1248</b>	32RE1	SW8082A	<b>6.61 mg/kg dry</b>		5.51	100	11/14/18 12:20	11/15/18 16:41	HLM
PCB as Aroclor 1254	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
PCB as Aroclor 1260	32	SW8082A	<0.110 mg/kg dry		0.110	1	11/14/18 12:20	11/15/18 04:42	HLM
Surr: DCB	32	SW8082A	72.5 %		30-105		11/14/18 12:20	11/15/18 04:42	HLM
Surr: TCMX	32	SW8082A	82.5 %		30-105		11/14/18 12:20	11/15/18 04:42	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	32	SM18 2540G	89.0 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

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Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-16

Laboratory Sample ID: 18K0387-33

Grab Date/Time: 11/02/2018 13:00

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
PCB as Aroclor 1221	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
PCB as Aroclor 1232	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
PCB as Aroclor 1242	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
PCB as Aroclor 1248	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
<b>PCB as Aroclor 1254</b>	33RE1	SW8082A	<b>1.11 mg/kg dry</b>		0.619	10	11/14/18 12:20	11/15/18 16:59	HLM
PCB as Aroclor 1260	33	SW8082A	<0.124 mg/kg dry		0.124	1	11/14/18 12:20	11/15/18 05:01	HLM
Surr: DCB	33	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 05:01	HLM
Surr: TCMX	33	SW8082A	55.0 %		30-105		11/14/18 12:20	11/15/18 05:01	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	33	SM18 2540G	80.5 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

### Final Report

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-17

Laboratory Sample ID: 18K0387-34

Grab Date/Time: 11/02/2018 13:10

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1221	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1232	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1242	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1248	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1254	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
PCB as Aroclor 1260	34	SW8082A	<0.152 mg/kg dry		0.152	1	11/14/18 12:20	11/15/18 05:19	HLM
Surr: DCB	34	SW8082A	50.0 %		30-105		11/14/18 12:20	11/15/18 05:19	HLM
Surr: TCMX	34	SW8082A	45.0 %		30-105		11/14/18 12:20	11/15/18 05:19	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	34	SM18 2540G	65.7 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

### Final Report

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11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Laboratory Order ID: 18K0387

#### Analytical Results

Sample I.D. 6-18

Laboratory Sample ID: 18K0387-35

Grab Date/Time: 11/02/2018 13:20

Field Residual Cl:

Field pH:

Parameter	Samp ID	Method	Result	Qual	Reporting Limit	D.F.	Sample Prep Date/Time	Analysis Date/Time	Analyst
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>									
PCB as Aroclor 1016	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
PCB as Aroclor 1221	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
PCB as Aroclor 1232	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
PCB as Aroclor 1242	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
PCB as Aroclor 1248	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
<b>PCB as Aroclor 1254</b>	35RE1	SW8082A	<b>0.337 mg/kg dry</b>		0.153	1	11/14/18 12:20	11/15/18 17:20	HLM
PCB as Aroclor 1260	35	SW8082A	<0.153 mg/kg dry		0.153	1	11/14/18 12:20	11/15/18 05:38	HLM
Surr: DCB	35	SW8082A	47.5 %		30-105		11/14/18 12:20	11/15/18 05:38	HLM
Surr: TCMX	35	SW8082A	57.5 %		30-105		11/14/18 12:20	11/15/18 05:38	HLM
<b>Wet Chemistry Analysis</b>									
Percent Solids	35	SM18 2540G	65.1 %		0.10	1	11/13/18 15:50	11/13/18 15:50	RLM



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 30  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

### Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
<b>Wet Chemistry Analysis</b>		<b>Preparation Method:</b>	<b>No Prep Wet Chem</b>		
18K0387-22	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-23	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-24	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-25	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-26	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-27	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-28	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-29	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-30	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-31	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-32	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-33	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-34	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
18K0387-35	1.00 g / 1.00 mL	SM18 2540G	BBK0425	SBK0413	
<b>Wet Chemistry Analysis</b>		<b>Preparation Method:</b>	<b>No Prep Wet Chem</b>		
18K0387-01	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-02	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-03	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-04	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-05	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-06	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-07	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-08	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-09	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-10	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-11	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-12	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-13	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-14	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-15	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-16	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-17	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-18	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	



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Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
18K0387-19	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
18K0387-20	1.00 g / 1.00 mL	SM18 2540G	BBK0465	SBK0446	
<b>Wet Chemistry Analysis</b>		<b>Preparation Method:</b>	<b>No Prep Wet Chem</b>		
18K0387-21	1.00 g / 1.00 mL	SM18 2540G	BBK0466	SBK0446	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>		<b>Preparation Method:</b>	<b>SW3510C</b>		
18K0387-01	30.9 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-01RE1	30.9 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-02	30.6 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-03	30.2 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-04	30.1 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-05	30.1 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-06	30.5 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-07	31.4 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-07RE1	31.4 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-08	33.2 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-08RE1	33.2 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-09	34.3 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-09RE1	34.3 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-10	31.0 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-10RE1	31.0 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-11	30.4 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-11RE1	30.4 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-12	30.7 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-12RE1	30.7 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-13	30.9 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-14	30.6 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-15	32.6 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-15RE1	32.6 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049
18K0387-16	30.2 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-17	30.7 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-18	31.1 g / 5.00 mL	SW8082A	BBK0455	SBK0491	AD80040
18K0387-18RE1	31.1 g / 5.00 mL	SW8082A	BBK0455	SBK0517	AH80049



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
<b>Organochlorine Pesticides and PCBs by GC/ECD</b>		<b>Preparation Method:</b>	<b>SW3510C</b>		
18K0387-19	31.2 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-20	30.8 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-20RE1	30.8 g / 5.00 mL	SW8082A	BBK0490	SBK0517	AH80049
18K0387-21	31.3 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-22	30.2 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-23	30.7 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-24	31.4 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-25	30.7 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-26	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-27	30.3 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-27RE1	30.3 g / 5.00 mL	SW8082A	BBK0490	SBK0517	AH80049
18K0387-28	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-29	30.3 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-29RE1	30.3 g / 5.00 mL	SW8082A	BBK0490	SBK0517	AH80049
18K0387-30	30.7 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-31	30.2 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-31RE1	30.2 g / 5.00 mL	SW8082A	BBK0490	SBK0518	AH80059
18K0387-32	30.6 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-32RE1	30.6 g / 5.00 mL	SW8082A	BBK0490	SBK0518	AH80059
18K0387-33	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-33RE1	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0517	AH80049
18K0387-34	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-35	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0491	AD80040
18K0387-35RE1	30.1 g / 5.00 mL	SW8082A	BBK0490	SBK0517	AH80049



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## Certificate of Analysis

### Final Report

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11260 Roger Bacon Drive Suite 31  
Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

### Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BBK0455 - SW3510C

##### Blank (BBK0455-BLK1)

Prepared & Analyzed: 11/14/2018

PCB as Aroclor 1016	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1221	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1232	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1242	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1248	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1254	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1260	<0.100 mg/kg wet	0.100	mg/kg wet

Surr: DCB	0.0623	mg/kg wet	0.0623	100	30-105
Surr: TCMX	0.0405	mg/kg wet	0.0623	65.0	30-105

##### LCS (BBK0455-BS1)

Prepared & Analyzed: 11/14/2018

PCB as Aroclor 1016	0.145 mg/kg wet	0.100	mg/kg wet	0.153	mg/kg wet	95.0	60-140
PCB as Aroclor 1260	0.174 mg/kg wet	0.100	mg/kg wet	0.153	mg/kg wet	114	60-140
<hr/>							
Surr: DCB	0.0627		mg/kg wet	0.0612	mg/kg wet	102	30-105
Surr: TCMX	0.0566		mg/kg wet	0.0612	mg/kg wet	92.5	30-105

##### Matrix Spike (BBK0455-MS1)

Source: 18K0384-01

Prepared & Analyzed: 11/14/2018

PCB as Aroclor 1016	<0.100 mg/kg wet	0.100	mg/kg wet	0.161	<0.100 mg/kg wet	51.0	60-140
PCB as Aroclor 1260	<0.100 mg/kg wet	0.100	mg/kg wet	0.161	<0.100 mg/kg wet	29.0	60-140
<hr/>							
Surr: DCB	0.0209		mg/kg wet	0.0643	mg/kg wet	32.5	30-105
Surr: TCMX	0.0241		mg/kg wet	0.0643	mg/kg wet	37.5	30-105

##### Matrix Spike Dup (BBK0455-MSD1)

Source: 18K0384-01

Prepared & Analyzed: 11/14/2018

PCB as Aroclor 1016	0.108 mg/kg wet	0.100	mg/kg wet	0.146	<0.100 mg/kg wet	74.0	60-140
PCB as Aroclor 1260	<0.100 mg/kg wet	0.100	mg/kg wet	0.146	<0.100 mg/kg wet	41.0	60-140
<hr/>							
Surr: DCB	0.0205		mg/kg wet	0.0585	mg/kg wet	35.0	30-105
Surr: TCMX	0.0249		mg/kg wet	0.0585	mg/kg wet	42.5	30-105



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## Certificate of Analysis

### Final Report

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

### Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BBK0490 - SW3510C

##### Blank (BBK0490-BLK1)

Prepared: 11/14/2018 Analyzed: 11/15/2018

PCB as Aroclor 1016	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1221	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1232	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1242	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1248	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1254	<0.100 mg/kg wet	0.100	mg/kg wet
PCB as Aroclor 1260	<0.100 mg/kg wet	0.100	mg/kg wet

Surr: DCB	0.0644	mg/kg wet	0.0660	97.5	30-105
Surr: TCMX	0.0611	mg/kg wet	0.0660	92.5	30-105

##### LCS (BBK0490-BS1)

Prepared: 11/14/2018 Analyzed: 11/15/2018

PCB as Aroclor 1016	0.157 mg/kg wet	0.100	mg/kg wet	0.167	mg/kg wet	94.0	60-140
PCB as Aroclor 1260	0.170 mg/kg wet	0.100	mg/kg wet	0.167	mg/kg wet	102	60-140

Surr: DCB	0.0533	mg/kg wet	0.0667	mg/kg wet	80.0	30-105
Surr: TCMX	0.0550	mg/kg wet	0.0667	mg/kg wet	82.5	30-105

##### Matrix Spike (BBK0490-MS1)

Source: 18K0387-26

Prepared: 11/14/2018 Analyzed: 11/15/2018

PCB as Aroclor 1016	0.190 mg/kg dry	0.121	mg/kg dry	0.202	<0.121 mg/kg dry	94.0	60-140
PCB as Aroclor 1260	0.174 mg/kg dry	0.121	mg/kg dry	0.202	<0.121 mg/kg dry	86.0	60-140

Surr: DCB	0.0545	mg/kg dry	0.0808	mg/kg dry	67.5	30-105
Surr: TCMX	0.0545	mg/kg dry	0.0808	mg/kg dry	67.5	30-105

##### Matrix Spike Dup (BBK0490-MSD1)

Source: 18K0387-26

Prepared: 11/14/2018 Analyzed: 11/15/2018

PCB as Aroclor 1016	0.183 mg/kg dry	0.122	mg/kg dry	0.203	<0.122 mg/kg dry	90.0	60-140	3.69	20	
PCB as Aroclor 1260	0.138 mg/kg dry	0.122	mg/kg dry	0.203	<0.122 mg/kg dry	68.0	60-140	22.7	20	P

Surr: DCB	0.0447	mg/kg dry	0.0813	mg/kg dry	55.0	30-105
Surr: TCMX	0.0467	mg/kg dry	0.0813	mg/kg dry	57.5	30-105



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## Certificate of Analysis

### Final Report

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Reston VA, 20190

Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger

Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA

Purchase Order:

### Wet Chemistry Analysis - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BBK0425 - No Prep Wet Chem

<b>Blank (BBK0425-BLK1)</b>		Prepared & Analyzed: 11/13/2018								
Percent Solids	100 %	0.10	%							
<b>Duplicate (BBK0425-DUP1)</b>		<b>Source: 18K0493-02</b>		Prepared & Analyzed: 11/13/2018						
Percent Solids	86.2 %	0.10	%		86.5 %			0.392	20	
<b>Duplicate (BBK0425-DUP2)</b>		<b>Source: 18K0494-10</b>		Prepared & Analyzed: 11/13/2018						
Percent Solids	86.7 %	0.10	%		86.4 %			0.324	20	

#### Batch BBK0465 - No Prep Wet Chem

<b>Blank (BBK0465-BLK1)</b>		Prepared & Analyzed: 11/14/2018								
Percent Solids	100 %	0.10	%							
<b>Duplicate (BBK0465-DUP1)</b>		<b>Source: 18K0387-10</b>		Prepared & Analyzed: 11/14/2018						
Percent Solids	45.6 %	0.10	%		53.2 %			15.3	20	
<b>Duplicate (BBK0465-DUP2)</b>		<b>Source: 18K0387-20</b>		Prepared & Analyzed: 11/14/2018						
Percent Solids	68.2 %	0.10	%		66.7 %			2.34	20	

#### Batch BBK0466 - No Prep Wet Chem

<b>Blank (BBK0466-BLK1)</b>		Prepared & Analyzed: 11/14/2018								
Percent Solids	100 %	0.10	%							
<b>Duplicate (BBK0466-DUP1)</b>		<b>Source: 18K0387-21</b>		Prepared & Analyzed: 11/14/2018						
Percent Solids	78.1 %	0.10	%		76.3 %			2.28	20	



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## Certificate of Analysis

### Final Report

Client Name: SCS Engineers-Reston  
11260 Roger Bacon Drive Suite 31  
Reston VA, 20190  
Date Issued: 11/15/2018 18:24

Submitted To: Austin Drooger  
Project Number: 02204085.00

Client Site I.D.: ARC - Gainesville, VA  
Purchase Order:

### Certified Analyses included in this Report

Analyte	Certifications		
SW8082A in Solids			
PCB as Aroclor 1016	VELAP,NC		
PCB as Aroclor 1221	VELAP,NC		
PCB as Aroclor 1232	VELAP,NC		
PCB as Aroclor 1242	VELAP,NC		
PCB as Aroclor 1248	VELAP,NC		
PCB as Aroclor 1254	VELAP,NC		
PCB as Aroclor 1260	VELAP,NC		
Code	Description	Lab Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2019
NC	North Carolina DENR	495	12/31/2018
VELAP	NELAC-Virginia Certificate #9991	460021	06/14/2019
WVDEP	West Virginia DEP	350	11/30/2018



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## Certificate of Analysis

### *Final Report*

Client Name:	SCS Engineers-Reston 11260 Roger Bacon Drive Suite 31 Reston VA, 20190	Date Issued:	11/15/2018 18:24
Submitted To:	Austin Drooger	Project Number:	02204085.00
Client Site I.D.:	ARC - Gainesville, VA	Purchase Order:	

### Summary of Data Qualifiers

M Matrix spike recovery is outside established acceptance limits

P Duplicate analysis does not meet the acceptance criteria for precision

S Surrogate recovery was outside acceptance criteria

RPD Relative Percent Difference

Qual Qualifiers

-RE Denotes sample was re-analyzed

D.F. Dilution Factor. Please also see the Preparation Factor in the Analysis Summary section.

TIC Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library .  
A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

PCBs, Total Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

## CHAIN OF CUSTODY

PAGE 31 OF 4

COMPANY NAME: SCS Engineers	INVOICE TO: SAME	PROJECT NAME/Quote #: ARC-Gainesville, VA
CONTACT: Austin Drooger	INVOICE CONTACT:	SITE NAME: ARC-Gainesville, VA
ADDRESS: 11260 Roger Bacon Dr, 300, Reston, VA	INVOICE ADDRESS:	PROJECT NUMBER: 02204085.00
PHONE #: 571-353-2000	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: adrooger@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES <input checked="" type="radio"/> NO <input type="radio"/>	Is sample from a chlorinated supply? YES <input checked="" type="radio"/> NO <input type="radio"/>	PWS I.D. #:
SAMPLER NAME (PRINT): Austin Drooger		Turn Around Time: 0 Day(s)
SAMPLER SIGNATURE: [Signature]		

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.												ANALYSIS / (PRESERVATIVE)										COMMENTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
												Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers											Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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RELINQUISHED: [Signature]	DATE / TIME: 11/7/18 1600	RECEIVED: FedEx Express	DATE / TIME: 8 NOV 2018 10.25	QC Data Package	LAB USE ONLY	COOLER TEMP
RELINQUISHED: FedEx	DATE / TIME:	RECEIVED: [Signature]	DATE / TIME:	Level I <input type="checkbox"/>	SCS-R	18K0387
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	ARC Gainesville, VA	
				Level III <input type="checkbox"/>	Recd: 11/08/2018 Due: 11/26/2018	
				Level IV <input type="checkbox"/>		

## CHAIN OF CUSTODY

PAGE 2 OF 4

COMPANY NAME: <u>SCS Engineers</u>	INVOICE TO: <u>SAME</u>	PROJECT NAME/Quote #: <u>ARC-Gainesville, VA</u>
CONTACT: <u>Austin Drooger</u>	INVOICE CONTACT:	SITE NAME: <u>ARC-Gainesville, VA</u>
ADDRESS: <u>11260 Roger Bacon Dr, 300, Reston, VA</u>	INVOICE ADDRESS:	PROJECT NUMBER: <u>02204085.00</u>
PHONE #: <u>571-353-2000</u>	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: <u>adrooger@scsengineers.com</u>	Pretreatment Program:
Is sample for compliance reporting? YES <input checked="" type="radio"/> NO <input type="radio"/>		Is sample from a chlorinated supply? YES <input checked="" type="radio"/> NO <input type="radio"/>
		PWS I.D. #:

SAMPLER NAME (PRINT): <u>Austin Drooger</u>	SAMPLER SIGNATURE: <u>[Signature]</u>	Turn Around Time: <u>10</u> Day(s)
---	---------------------------------------	------------------------------------

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.										ANALYSIS / (PRESERVATIVE)										Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
										Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers											PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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RELINQUISHED: <u>[Signature]</u>	DATE / TIME: <u>11/7/18 1600</u>	RECEIVED: <u>FedEx Express</u>	DATE / TIME: <u>8 NOV 2018 10.25</u>	QC Data Package	LAB USE ONLY	COOLER TEMP: <u>4.6 °C</u>
RELINQUISHED: <u>FedEx</u>	DATE / TIME:	RECEIVED: <u>[Signature]</u>	DATE / TIME:	Level I <input type="checkbox"/>	SCS-R	18K0387
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	ARC Gainesville, VA	
				Level III <input type="checkbox"/>	Recd: 11/08/2018	Due: 11/26/2018
				Level IV <input type="checkbox"/>		

## CHAIN OF CUSTODY

PAGE 3 OF 4

COMPANY NAME: <u>SCS Engineers</u>	INVOICE TO: <u>SAME</u>	PROJECT NAME/Quote #: <u>ARC-Gainesville, VA</u>
CONTACT: <u>Austin Drooger</u>	INVOICE CONTACT:	SITE NAME: <u>ARC-Gainesville, VA</u>
ADDRESS: <u>11260 Roger Bacon Dr, 300, Reston, VA</u>	INVOICE ADDRESS:	PROJECT NUMBER: <u>02204085.00</u>
PHONE #: <u>571-353-2000</u>	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: <u>adrooger@scsengineers.com</u>	Pretreatment Program:
Is sample for compliance reporting? YES <input checked="" type="radio"/> NO <input type="radio"/>		Is sample from a chlorinated supply? YES <input checked="" type="radio"/> NO <input type="radio"/>
		PWS I.D. #:

SAMPLER NAME (PRINT): <u>Austin Drooger</u>	SAMPLER SIGNATURE: <u>[Signature]</u>	Turn Around Time: <u>10</u> Day(s)
---	---------------------------------------	------------------------------------

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.										ANALYSIS / (PRESERVATIVE)										COMMENTS	
	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers											
1)	6-4	X				11/7/18	9:35		Soil	1	X										
2)	6-5						10:15														
3)	6-6						10:30														
4)	6-7						10:40														
5)	6-8						11:00														
6)	6-9						11:20														
7)	6-10						11:40														
8)	6-11						12:00														
9)	6-12						12:15														
10)	6-13						12:30														

RELINQUISHED: <u>[Signature]</u>	DATE / TIME: <u>11/7/18 1600</u>	RECEIVED: <u>Fed Ex Express</u>	DATE / TIME: <u>8 Nov 2018 10.25</u>	QC Data Package	LAB USE ONLY	COOLER TEMP: <u>4.6</u> °C
RELINQUISHED: <u>Fed Ex</u>	DATE / TIME:	RECEIVED: <u>[Signature]</u>	DATE / TIME:	Level I <input type="checkbox"/>	SCS-R	18K0387
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	ARC Gainesville, VA	
				Level III <input type="checkbox"/>	Recd: 11/08/2018 Due: 11/26/2018	
				Level IV <input type="checkbox"/>		

## CHAIN OF CUSTODY

PAGE 31 OF 4

COMPANY NAME: <u>SCS Engineers</u>	INVOICE TO: <u>SAME</u>	PROJECT NAME/Quote #: <u>ARC-Gainesville, VA</u>
CONTACT: <u>Austin Drogger</u>	INVOICE CONTACT:	SITE NAME: <u>ARC-Gainesville, VA</u>
ADDRESS: <u>11260 Roger Bacon Dr, 300, Reston, VA</u>	INVOICE ADDRESS:	PROJECT NUMBER: <u>02204085.00</u>
PHONE #: <u>571-353-2000</u>	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: <u>adrogger@scsengineers.com</u>	Pretreatment Program:
Is sample for compliance reporting? YES <input checked="" type="radio"/> NO <input type="radio"/>		Is sample from a chlorinated supply? YES <input checked="" type="radio"/> NO <input type="radio"/>
		PWS I.D. #:

SAMPLER NAME (PRINT): <u>Austin Drogger</u>	SAMPLER SIGNATURE: <u>[Signature]</u>	Turn Around Time: <u>10</u> Day(s)
---	---------------------------------------	------------------------------------

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.										ANALYSIS / (PRESERVATIVE)										COMMENTS	
	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers											
1)	<u>6-14</u>	<input checked="" type="checkbox"/>				<u>11/2/18</u>	<u>1240</u>		<u>Soil</u>	<u>1</u>	<u>X</u>										
2)	<u>6-15</u>	<input type="checkbox"/>					<u>1250</u>														
3)	<u>6-16</u>	<input type="checkbox"/>					<u>1300</u>														
4)	<u>6-17</u>	<input type="checkbox"/>					<u>1310</u>														
5)	<u>6-18</u>	<input type="checkbox"/>					<u>1320</u>														
6)																					
7)																					
8)																					
9)																					
10)																					

RELINQUISHED: <u>[Signature]</u>	DATE / TIME: <u>11/7/18 1600</u>	RECEIVED: <u>FedEx Express</u>	DATE / TIME: <u>11/8/2018 10.25</u>	QC Data Package	LAB USE ONLY	COOLER TEMP <u>4.6</u> °C
RELINQUISHED: <u>FedEx</u>	DATE / TIME:	RECEIVED: <u>[Signature]</u>	DATE / TIME:	Level I <input type="checkbox"/>	SCS-R	18K0387
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	ARC Gainesville, VA	
				Level III <input type="checkbox"/>	Recd: 11/08/2018 Due: 11/26/2018	
				Level IV <input type="checkbox"/>		



1941 Reymet Road • Richmond, Virginia 23230 • Tel: (804)-358-8295 Fax: (804)-358-8297

## Certificate of Analysis

### Final Report

Client Name:	SCS Engineers-Reston 11260 Roger Bacon Drive Suite 31 Reston VA, 20190	Date Issued:	11/15/2018 18:24
Submitted To:	Austin Drooger	Project Number:	02204085.00
Client Site I.D.:	ARC - Gainesville, VA	Purchase Order:	

## Sample Conditions Checklist

Samples Received at:	4.60°C
How were samples received?	FedEx Express
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits? (above freezing to 6°C) or received on ice and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

### Work Order Comments

Per Mike McLaughlin, data is due by close of business 11-15-18. KLC 11-13-2018.

September 19, 2018

Michael W. McLaughlin  
SCS Engineers  
11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190


Re: Routine Analysis  
Work Order: 459266

Dear Michael McLaughlin:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 11, 2018. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4778.

Sincerely,



Taylor Cannon for  
Hope Taylor  
Project Manager

Purchase Order: xxx  
Enclosures

## GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

### Certificate of Analysis Report for

SCES001 SCS Engineers

Client SDG: 459266 GEL Work Order: 459266

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Hope Taylor.

Reviewed by



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B31S-1  
Sample ID: 459266001  
Matrix: Soil  
Collect Date: 07-SEP-18 10:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 18.9%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.607	2.43	ug/kg	9.85	1	BF	09/17/18	1843	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B31W-2  
Sample ID: 459266002  
Matrix: Soil  
Collect Date: 07-SEP-18 10:30  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 20.9%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.626	2.50	ug/kg	9.90	1	BF	09/17/18	1913	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B31N-3  
Sample ID: 459266003  
Matrix: Soil  
Collect Date: 07-SEP-18 11:30  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 26.4%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.679	2.72	ug/kg	10.0	1	BF	09/17/18	1923	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B32N-1  
Sample ID: 459266004  
Matrix: Soil  
Collect Date: 05-SEP-18 10:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 12.7%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	1.65	0.573	2.29	ug/kg	10.0	1	BF	09/17/18	1933	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B32SW-2  
Sample ID: 459266005  
Matrix: Soil  
Collect Date: 05-SEP-18 12:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 15.1%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.580	2.32	ug/kg	9.85	1	BF	09/17/18	1943	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B32NW-3 Project: SCES00118  
Sample ID: 459266006 Client ID: SCES001  
Matrix: Soil  
Collect Date: 05-SEP-18 11:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 14.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.582	2.33	ug/kg	10.0	1	BF	09/17/18	2033	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: B32SE-4  
Sample ID: 459266007  
Matrix: Soil  
Collect Date: 05-SEP-18 13:50  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 16.9%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	0.814	0.602	2.41	ug/kg	10.0	1	BF	09/17/18	2042	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: 88-1  
Sample ID: 459266008  
Matrix: Soil  
Collect Date: 07-SEP-18 12:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 23.3%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.643	2.57	ug/kg	9.85	1	BF	09/17/18	2052	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: 88-2  
Sample ID: 459266009  
Matrix: Soil  
Collect Date: 07-SEP-18 13:00  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 15.7%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.584	2.34	ug/kg	9.85	1	BF	09/17/18	2102	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: September 19, 2018

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: 88-3  
Sample ID: 459266010  
Matrix: Soil  
Collect Date: 07-SEP-18 14:30  
Receive Date: 11-SEP-18  
Collector: Client  
Moisture: 19.6%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.622	2.49	ug/kg	10.0	1	BF	09/17/18	2112	1802372	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BF	09/17/18	1430	1802371

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Report Date: September 19, 2018

Page 1 of 2

SCS Engineers  
11260 Roger Bacon Drive  
Suite 300

Reston, Virginia

Contact: Michael W. McLaughlin

Workorder: 459266

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
LC-MS/MS Perchlorate											
Batch	1802372										
QC1204113547	ICS										
Perchlorate	2.00		J	1.93	ug/kg		97	(70%-130%)	BF	09/17/18	18:33
QC1204113544	LCS										
Perchlorate	1.97		J	1.84	ug/kg		93	(70%-130%)		09/17/18	18:23
QC1204113543	MB										
Perchlorate			U	ND	ug/kg					09/17/18	18:13
QC1204113545	459266001 MS										
Perchlorate	2.43	U	ND	2.82	ug/kg		110	(75%-125%)		09/17/18	18:53
QC1204113546	459266001 MSD										
Perchlorate	2.45	U	ND	2.65	ug/kg	6	102	(0%-30%)		09/17/18	19:03

### Notes:

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated

# GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 459266

Page 2 of 2

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
JNX	Non Calibrated Compound										
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.										
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.										
M	M if above MDC and less than LLD										
M	REMP Result > MDC/CL and < RDL										
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor										
N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor										
N/A	RPD or %Recovery limits do not apply.										
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Compound cannot be extracted										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
Y	QC Samples were not spiked with this compound										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**Technical Case Narrative  
SCS Engineers (SCES)  
SDG #: 459266**

## **Perchlorates by LCMSMS**

**Product:** Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)

**Analytical Method:** SW846 6850 Modified

**Analytical Procedure:** GL-OA-E-067 REV# 14

**Analytical Batches:** 1802372 and 1802371

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
459266001	B31S-1
459266002	B31W-2
459266003	B31N-3
459266004	B32N-1
459266005	B32SW-2
459266006	B32NW-3
459266007	B32SE-4
459266008	88-1
459266009	88-2
459266010	88-3
1204113543	Method Blank (MB)
1204113544	Laboratory Control Sample (LCS)
1204113545	459266001(B31S-1) Matrix Spike (MS)
1204113546	459266001(B31S-1) Matrix Spike Duplicate (MSD)
1204113547	Interference Check Sample (ICS)

The samples in this SDG were analyzed on a "dry weight" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

## **Radiochemistry**

**Product:** Dry Weight

**Analytical Method:** ASTM D 2216 (Modified)

**Analytical Procedure:** GL-OA-E-020 REV# 13

**Analytical Batch:** 1802344

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
459266001	B31S-1
459266002	B31W-2

459266003	B31N-3
459266004	B32N-1
459266005	B32SW-2
459266006	B32NW-3
459266007	B32SE-4
459266008	88-1
459266009	88-2
459266010	88-3
1204113495	459266001(B31S-1) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.



SAMPLE RECEIPT & REVIEW FORM

Client: <b>SCES</b>		SDG/AR/COC/Work Order: <b>495260 459266</b>	
Received By: <b>ZKW</b>		Date Received: <b>9/11/18</b> <b>KG 9/17</b>	
Carrier and Tracking Number		Circle Applicable: FedEx Express <input checked="" type="checkbox"/> FedEx Ground <input type="checkbox"/> UPS <input type="checkbox"/> Field Services <input type="checkbox"/> Courier <input type="checkbox"/> Other <input type="checkbox"/> <b>7827 1332 2560</b>	
Suspected Hazard Information	Yes <input type="checkbox"/> No <input type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
Shipped as a DOT Hazardous?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____	
COC/Samples marked or classified as radioactive?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <b>0</b> <b>PM</b> mR/Hr Classified as: Rad 1 Rad 2 Rad 3	
Is package, COC, and/or Samples marked HAZ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2 Chain of custody documents included with shipment? <b>9/11/18</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>CofC Created upon arrival</b>
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <b>Wet Ice</b> Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius <b>TEMP: 2°C</b>
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <b>IR3-18</b> Secondary Temperature Device Serial # (If Applicable):
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: If Preservation added Lot#:
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, Are Encores or Soil Kits present? Yes ___ No ___ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ___ No ___ N/A ___ (If unknown, select No) VOA vials free of headspace? Yes ___ No ___ N/A ___ Sample ID's and containers affected:
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's affected:
12 Are sample containers identifiable as GEL provided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials **KG** Date **9/17/18** Page **1** of **1**

**List of current GEL Certifications as of 19 September 2018**

<b>State</b>	<b>Certification</b>
Alaska	17-018
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122018-1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-18-13
Utah NELAP	SC000122018-26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

June 26, 2019

Michael W. McLaughlin  
SCS Engineers  
11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190

Re: Routine Analysis  
Work Order: 481971

Dear Michael McLaughlin:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 14, 2019. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at [www.gel.com](http://www.gel.com).

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4778.

Sincerely,



Taylor Cannon for  
Hope Taylor  
Project Manager

Purchase Order: xxx  
Enclosures

## GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556-8171 – www.gel.com

### Certificate of Analysis Report for

SCES001 SCS Engineers

Client SDG: 481971 GEL Work Order: 481971

**The Qualifiers in this report are defined as follows:**

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Hope Taylor.

Reviewed by



# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-1  
Sample ID: 481971001  
Matrix: Soil  
Collect Date: 07-JUN-19 11:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 28.9%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.689	2.76	ug/kg	9.80	1	CWW	06/21/19	0028	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-2  
Sample ID: 481971002  
Matrix: Soil  
Collect Date: 07-JUN-19 11:45  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 30.6%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.713	2.85	ug/kg	9.90	1	CWW	06/21/19	0056	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-3  
Sample ID: 481971003  
Matrix: Soil  
Collect Date: 07-JUN-19 12:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 34.2%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.748	2.99	ug/kg	9.85	1	CWW	06/21/19	0105	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-4  
Sample ID: 481971004  
Matrix: Soil  
Collect Date: 07-JUN-19 12:15  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 19.2%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.616	2.46	ug/kg	9.95	1	CWW	06/21/19	0115	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-5  
Sample ID: 481971005  
Matrix: Soil  
Collect Date: 07-JUN-19 12:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 10.5%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.553	2.21	ug/kg	9.90	1	CWW	06/21/19	0124	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-6  
Sample ID: 481971006  
Matrix: Soil  
Collect Date: 07-JUN-19 12:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 29.6%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.700	2.80	ug/kg	9.85	1	CWW	06/21/19	0202	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-7  
Sample ID: 481971007  
Matrix: Soil  
Collect Date: 07-JUN-19 12:45  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 26.6%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.668	2.67	ug/kg	9.80	1	CWW	06/21/19	0212	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-8  
Sample ID: 481971008  
Matrix: Soil  
Collect Date: 07-JUN-19 13:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 25.1%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.664	2.66	ug/kg	9.95	1	CWW	06/21/19	0221	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-9  
Sample ID: 481971009  
Matrix: Soil  
Collect Date: 10-JUN-19 08:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 25%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate		7.37	0.660	2.64	ug/kg	9.90	1	CWW	06/21/19	0231	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-10 Project: SCES00118  
Sample ID: 481971010 Client ID: SCES001  
Matrix: Soil  
Collect Date: 10-JUN-19 09:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 30.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.710	2.84	ug/kg	9.85	1	CWW	06/21/19	0240	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-11  
Sample ID: 481971011  
Matrix: Soil  
Collect Date: 10-JUN-19 09:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 29%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate		11.6	0.683	2.73	ug/kg	9.71	1	CWW	06/21/19	0250	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-12 Project: SCES00118  
Sample ID: 481971012 Client ID: SCES001  
Matrix: Soil  
Collect Date: 10-JUN-19 10:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 14.4%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	1.01	0.581	2.33	ug/kg	9.95	1	CWW	06/21/19	0259	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-13  
Sample ID: 481971013  
Matrix: Soil  
Collect Date: 10-JUN-19 10:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 16.5%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.584	2.34	ug/kg	9.76	1	CWW	06/21/19	0308	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA1-14 Project: SCES00118  
Sample ID: 481971014 Client ID: SCES001  
Matrix: Soil  
Collect Date: 10-JUN-19 11:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 15.9%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	2.21	0.580	2.32	ug/kg	9.76	1	CWW	06/21/19	0318	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA2-15  
Sample ID: 481971015  
Matrix: Soil  
Collect Date: 10-JUN-19 11:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 14.9%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.582	2.33	ug/kg	9.90	1	CWW	06/21/19	0327	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA2-16 Project: SCES00118  
Sample ID: 481971016 Client ID: SCES001  
Matrix: Soil  
Collect Date: 10-JUN-19 11:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 38.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.797	3.19	ug/kg	9.76	1	CWW	06/21/19	0405	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA2-17  
Sample ID: 481971017  
Matrix: Soil  
Collect Date: 10-JUN-19 12:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 23.6%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.639	2.55	ug/kg	9.76	1	CWW	06/21/19	0415	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA3-18 Project: SCES00118  
Sample ID: 481971018 Client ID: SCES001  
Matrix: Soil  
Collect Date: 11-JUN-19 09:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 29.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.696	2.78	ug/kg	9.80	1	CWW	06/21/19	0424	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
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Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA3-19 Project: SCES00118  
Sample ID: 481971019 Client ID: SCES001  
Matrix: Soil  
Collect Date: 11-JUN-19 09:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 30.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.704	2.82	ug/kg	9.85	1	CWW	06/21/19	0434	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA3-20 Project: SCES00118  
Sample ID: 481971020 Client ID: SCES001  
Matrix: Soil  
Collect Date: 11-JUN-19 10:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 29.3%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.697	2.79	ug/kg	9.85	1	CWW	06/21/19	0443	1887753	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1300	1887746

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA3-21 Project: SCES00118  
Sample ID: 481971021 Client ID: SCES001  
Matrix: Soil  
Collect Date: 11-JUN-19 10:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 30.2%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.682	2.73	ug/kg	9.52	1	CWW	06/19/19	0121	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA6-22 Project: SCES00118  
Sample ID: 481971022 Client ID: SCES001  
Matrix: Soil  
Collect Date: 11-JUN-19 11:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 15.4%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.569	2.27	ug/kg	9.62	1	CWW	06/19/19	0150	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA6-23  
Sample ID: 481971023  
Matrix: Soil  
Collect Date: 11-JUN-19 12:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 15.2%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.561	2.24	ug/kg	9.52	1	CWW	06/19/19	0200	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-24 Project: SCES00118  
Sample ID: 481971024 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 09:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 25.9%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.637	2.55	ug/kg	9.43	1	CWW	06/19/19	0210	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-25  
Sample ID: 481971025  
Matrix: Soil  
Collect Date: 12-JUN-19 09:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 22.7%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.644	2.58	ug/kg	9.95	1	CWW	06/19/19	0220	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-26 Project: SCES00118  
Sample ID: 481971026 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 10:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 13.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	0.564	0.553	2.21	ug/kg	9.62	1	CWW	06/19/19	0300	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-27  
Sample ID: 481971027  
Matrix: Soil  
Collect Date: 12-JUN-19 10:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 15.5%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	0.598	0.577	2.31	ug/kg	9.76	1	CWW	06/19/19	0310	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
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Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-28 Project: SCES00118  
Sample ID: 481971028 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 11:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 11.8%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.553	2.21	ug/kg	9.76	1	CWW	06/19/19	0320	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA5-29 Project: SCES00118  
Sample ID: 481971029 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 11:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 9.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.529	2.12	ug/kg	9.57	1	CWW	06/19/19	0330	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA4-30 Project: SCES00118  
Sample ID: 481971030 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 12:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 18.5%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.590	2.36	ug/kg	9.62	1	CWW	06/19/19	0340	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA4-31 Project: SCES00118  
Sample ID: 481971031 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 12:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 17.3%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.579	2.31	ug/kg	9.57	1	CWW	06/19/19	0350	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA4-32 Project: SCES00118  
Sample ID: 481971032 Client ID: SCES001  
Matrix: Soil  
Collect Date: 12-JUN-19 13:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 7.29%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.531	2.13	ug/kg	9.85	1	CWW	06/19/19	0400	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA4-33  
Sample ID: 481971033  
Matrix: Soil  
Collect Date: 12-JUN-19 13:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 25.4%

Project: SCES00118  
Client ID: SCES001

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.654	2.62	ug/kg	9.76	1	CWW	06/19/19	0410	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA8-34 Project: SCES00118  
Sample ID: 481971034 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 10:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 17.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.589	2.35	ug/kg	9.76	1	CWW	06/19/19	0420	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA8-35 Project: SCES00118  
Sample ID: 481971035 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 11:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 23.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.632	2.53	ug/kg	9.71	1	CWW	06/19/19	0430	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA8-36 Project: SCES00118  
Sample ID: 481971036 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 11:45  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 24.6%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.628	2.51	ug/kg	9.48	1	CWW	06/19/19	0509	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA8-37 Project: SCES00118  
Sample ID: 481971037 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 11:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 24.7%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.660	2.64	ug/kg	9.95	1	CWW	06/19/19	0519	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA8-38 Project: SCES00118  
Sample ID: 481971038 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 12:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 22%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.616	2.46	ug/kg	9.62	1	CWW	06/19/19	0529	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA10-39 Project: SCES00118  
Sample ID: 481971039 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 13:00  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 21.9%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	J	0.698	0.607	2.43	ug/kg	9.48	1	CWW	06/19/19	0539	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA10-40 Project: SCES00118  
Sample ID: 481971040 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 12:15  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 16.1%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.584	2.34	ug/kg	9.80	1	CWW	06/19/19	0549	1887765	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1802	1887764

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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## Certificate of Analysis

Report Date: June 26, 2019

Company : SCS Engineers  
Address : 11260 Roger Bacon Drive  
Suite 300  
Reston, Virginia 20190  
Contact: Michael W. McLaughlin  
Project: Routine Analysis

Client Sample ID: SRA10-41 Project: SCES00118  
Sample ID: 481971041 Client ID: SCES001  
Matrix: Soil  
Collect Date: 13-JUN-19 12:30  
Receive Date: 14-JUN-19  
Collector: Client  
Moisture: 15.3%

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
LC-MS/MS Perchlorate												
Perchlorate by LC-MS/MS "Dry Weight Corrected"												
Perchlorate	U	ND	0.570	2.28	ug/kg	9.66	1	CWW	06/19/19	0659	1887788	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 6850 Modified	EPA 6850 Perchlorate Extraction Solids	BXG2	06/18/19	1319	1887787

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 6850 Modified	

### Notes:

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

# GEL LABORATORIES LLC

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## QC Summary

Report Date: June 26, 2019

Page 1 of 3

SCS Engineers  
11260 Roger Bacon Drive  
Suite 300

Reston, Virginia

Contact: Michael W. McLaughlin

Workorder: 481971

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
LC-MS/MS Perchlorate											
Batch	1887753										
QC1204310508	ICS										
Perchlorate	1.97			2.01	ug/kg		102	(70%-130%)	CWW	06/21/19	00:18
QC1204310509	LCS										
Perchlorate	1.95	J		1.94	ug/kg		100	(70%-130%)		06/21/19	00:09
QC1204310507	MB										
Perchlorate		U		ND	ug/kg					06/20/19	23:59
QC1204310510	481971001	MS									
Perchlorate	2.77	U	ND	2.97	ug/kg		100	(75%-125%)		06/21/19	00:37
QC1204310511	481971001	MSD									
Perchlorate	2.74	U	ND	2.85	ug/kg	4	96	(0%-30%)		06/21/19	00:47
Batch 1887765											
QC1204310536	ICS										
Perchlorate	1.92	J		1.90	ug/kg		99	(70%-130%)	CWW	06/19/19	01:11
QC1204310537	LCS										
Perchlorate	2.00	J		1.95	ug/kg		97	(70%-130%)		06/19/19	01:01
QC1204310535	MB										
Perchlorate		U		ND	ug/kg					06/19/19	00:51
QC1204310538	481971021	MS									
Perchlorate	2.78	U	ND	2.64	ug/kg		95	(75%-125%)		06/19/19	01:31
QC1204310539	481971021	MSD									
Perchlorate	2.84	U	ND	3.19	ug/kg	19	113	(0%-30%)		06/19/19	01:40

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## QC Summary

Workorder: 481971

Page 2 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
LC-MS/MS Perchlorate											
Batch	1887788										
QC1204310581	ICS										
Perchlorate	1.94			2.06	ug/kg		106	(70%-130%)	CWW	06/19/19	06:49
QC1204310582	LCS										
Perchlorate	1.98	J		1.90	ug/kg		96	(70%-130%)		06/19/19	06:39
QC1204310580	MB										
Perchlorate		U		ND	ug/kg					06/19/19	06:29
QC1204310583	481971041	MS									
Perchlorate	2.30	U	NDJ	2.10	ug/kg		91	(75%-125%)		06/19/19	07:09
QC1204310584	481971041	MSD									
Perchlorate	2.36	U	NDJ	2.16	ug/kg	3	92	(0%-30%)		06/19/19	07:19

### Notes:

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B The target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Concentration of the target analyte exceeds the instrument calibration range
- FA Failed analysis.
- H Analytical holding time was exceeded
- J Value is estimated
- JNX Non Calibrated Compound
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- M M if above MDC and less than LLD

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## QC Summary

Workorder: 481971

Page 3 of 3

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
M	REMP Result > MDC/CL and < RDL										
N	Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor										
N	Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor										
N/A	RPD or %Recovery limits do not apply.										
N1	See case narrative										
ND	Analyte concentration is not detected above the detection limit										
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
P	Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.										
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.										
R	Sample results are rejected										
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.										
UI	Gamma Spectroscopy--Uncertain identification										
UJ	Compound cannot be extracted										
UJ	Gamma Spectroscopy--Uncertain identification										
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.										
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier										
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.										
Y	QC Samples were not spiked with this compound										
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.										
h	Preparation or preservation holding time was exceeded										

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**Technical Case Narrative**  
**SCS Engineers**  
**SDG #: 481971**

## **Perchlorates by LCMSMS**

**Product:** Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)

**Analytical Method:** SW846 6850 Modified

**Analytical Procedure:** GL-OA-E-067 REV# 15

**Analytical Batches:** 1887753 and 1887746

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971001	SRA1-1
481971002	SRA1-2
481971003	SRA1-3
481971004	SRA1-4
481971005	SRA1-5
481971006	SRA1-6
481971007	SRA1-7
481971008	SRA1-8
481971009	SRA1-9
481971010	SRA1-10
481971011	SRA1-11
481971012	SRA1-12
481971013	SRA1-13
481971014	SRA1-14
481971015	SRA2-15
481971016	SRA2-16
481971017	SRA2-17
481971018	SRA3-18
481971019	SRA3-19
481971020	SRA3-20
1204310507	Method Blank (MB)
1204310508	Interference Check Sample (ICS)
1204310509	Laboratory Control Sample (LCS)
1204310510	481971001(SRA1-1) Matrix Spike (MS)
1204310511	481971001(SRA1-1) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)

**Analytical Method:** SW846 6850 Modified

**Analytical Procedure:** GL-OA-E-067 REV# 15

**Analytical Batches:** 1887765 and 1887764

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971021	SRA3-21
481971022	SRA6-22
481971023	SRA6-23
481971024	SRA5-24
481971025	SRA5-25
481971026	SRA5-26
481971027	SRA5-27
481971028	SRA5-28
481971029	SRA5-29
481971030	SRA4-30
481971031	SRA4-31
481971032	SRA4-32
481971033	SRA4-33
481971034	SRA8-34
481971035	SRA8-35
481971036	SRA8-36
481971037	SRA8-37
481971038	SRA8-38
481971039	SRA10-39
481971040	SRA10-40
1204310535	Method Blank (MB)
1204310536	Interference Check Sample (ICS)
1204310537	Laboratory Control Sample (LCS)
1204310538	481971021(SRA3-21) Matrix Spike (MS)
1204310539	481971021(SRA3-21) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)

**Analytical Method:** SW846 6850 Modified

**Analytical Procedure:** GL-OA-E-067 REV# 15

**Analytical Batches:** 1887788 and 1887787

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971041	SRA10-41
1204310580	Method Blank (MB)
1204310581	Interference Check Sample (ICS)
1204310582	Laboratory Control Sample (LCS)
1204310583	481971041(SRA10-41) Matrix Spike (MS)

1204310584

481971041(SRA10-41) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on a "dry weight" basis.

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Radiochemistry**

**Product:** Dry Weight

**Analytical Method:** ASTM D 2216 (Modified)

**Analytical Procedure:** GL-OA-E-020 REV# 13

**Analytical Batch:** 1887147

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971001	SRA1-1
481971002	SRA1-2
481971003	SRA1-3
481971004	SRA1-4
481971005	SRA1-5
481971006	SRA1-6
481971007	SRA1-7
481971008	SRA1-8
481971009	SRA1-9
481971010	SRA1-10
481971011	SRA1-11
481971012	SRA1-12
481971013	SRA1-13
481971014	SRA1-14
481971015	SRA2-15
481971016	SRA2-16
481971017	SRA2-17
481971018	SRA3-18
481971019	SRA3-19
481971020	SRA3-20
1204309138	481971001(SRA1-1) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product: Dry Weight****Analytical Method:** ASTM D 2216 (Modified)**Analytical Procedure:** GL-OA-E-020 REV# 13**Analytical Batch:** 1887148

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971021	SRA3-21
481971022	SRA6-22
481971023	SRA6-23
481971024	SRA5-24
481971025	SRA5-25
481971026	SRA5-26
481971027	SRA5-27
481971028	SRA5-28
481971029	SRA5-29
481971030	SRA4-30
481971031	SRA4-31
481971032	SRA4-32
481971033	SRA4-33
481971034	SRA8-34
481971035	SRA8-35
481971036	SRA8-36
481971037	SRA8-37
481971038	SRA8-38
481971039	SRA10-39
481971040	SRA10-40
1204309139	481971021(SRA3-21) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product: Dry Weight****Analytical Method:** ASTM D 2216 (Modified)**Analytical Procedure:** GL-OA-E-020 REV# 13**Analytical Batch:** 1887149

The following samples were analyzed using the above methods and analytical procedure(s).

<b><u>GEL Sample ID#</u></b>	<b><u>Client Sample Identification</u></b>
481971041	SRA10-41
1204309140	481971041(SRA10-41) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

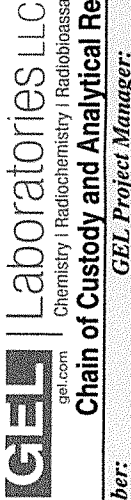
**Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Project # 6220408500  
GEL Quote #:  
GOC Number (1):  
PO Number:



2040 Savage Road  
Charleston, SC 29407  
Phone: (843) 556-8171  
Fax: (843) 766-1178

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Client Name: SCS Engineers

Phone # 571-353-2000

Fax #

Project/Site Name: ARC-Gainesville

Address: 11260 Roger Bacon Dr, 300, Reston, VA

Collected By: Austin Droger Send Results To: adroger@scsengineers.com

Sample Analysis Requested (5) (Fill in the number of containers for each test)

Should this sample be considered:

Radioactive (if yes, please supply isotopic info.)

Possible Hazards (7) Known or

Total number of containers

Preservative Type (6)

Comments

Note: extra sample is required for sample specific QC

Need detection limit < 3.7 mg

### Chain of Custody Signatures

Relinquished By (Signed)	Date	Received by (signed)	Date	Time
1. <i>Ad</i>	6/13	6/13	6/13	600
2.				
3.				

### Chain of Custody Signatures

Relinquished By (Signed)	Date	Received by (signed)	Date	Time
1. <i>Ad</i>	6/13	6/13	6/13	9:50
2.				
3.				

> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

### Sample Collection Time Zone

For Lab Receiving Use Only: Custody Seal Intact? ☐ Yes ☐ No Cooler Temp: 4 °C

TAT Requested: Normal: ☒ Rush: ☐ Specify: \_\_\_\_\_ (Subject to Surcharge)

Fax Results: ☐ Yes ☐ No

Select Deliverable: ☐ C of A ☐ QC Summary ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4

Additional Remarks:

Sample Collection Time Zone: ☐ Eastern ☐ Pacific ☐ Central ☐ Mountain ☐ Other:

### KNOWN OR POSSIBLE HAZARDS

RCRA Metals

As = Arsenic Hg = Mercury

Ba = Barium Se = Selenium

Cd = Cadmium Ag = Silver

Cr = Chromium MR = Misc. RCRA metals

Pb = Lead

### Characteristic Hazards

FL = Flammable/Ignitable

CO = Corrosive

RE = Reactive

TSCA Regulated

PCB = Polychlorinated biphenyls

### Listed Waste

LW = Listed Waste

(F, K, P and U-listed wastes.)

Waste code(s):

### Other

OT = Other / Unknown

(i.e.: High/low pH, asbestos, beryllium, irritants, other

misc. health hazards, etc.)

Description:

Please provide any additional details below regarding handling and/or disposal concerns, (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)



Sample Analysis Requested <sup>(5)</sup> (Fill in the number of containers for each test)										Preservative Type (6)		Comments  Note: extra sample is required for sample specific QC	
Should this sample be considered:		Total number of containers											
Radioactive (If yes, please supply isotopic info.)	Possible Hazards (7) Known or												
Send Results To:													
Collected By:													
* For composites - indicate start and stop date/time													
Sample ID	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code <sup>(2)</sup>	Field Filtered <sup>(3)</sup>	Sample Matrix <sup>(4)</sup>								
SRA3-21	6/11/19	1030			Soil								
SRA6-22	6/11/19	1100											
SRA6-23	6/11/19	1200											
SRA5-24	6/12/19	900											
SRA5-25	6/12/19	930											
SRA5-26	6/12/19	1000											
SRA5-27	6/12/19	1030											
SRA5-28	6/12/19	1100											
SRA5-29	6/12/19	1130											
SRA4-30	6/12/19	1200											
Perchlorate													
Need detection limit < 3.7 ug/kg													

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. <i>AK</i>	6/13	1600	2. <i>Z</i>	6/14/19	9:00
2.			3.		
3.					

TAT Requested: Normal: ☒ Rush: ☐ Specify: \_\_\_\_\_ (Subject to Surcharge)

Fax Results: ☐ Yes ☐ No

Select Deliverable: ☐ C of A ☐ QC Summary ☐ Level 1 ☐ Level 2 ☐ Level 3 ☐ Level 4

Additional Remarks:

For Lab Receiving Use Only: Custody Seal Intact? ☐ Yes ☐ No Cooler Temp: 44 °C

Sample Collection Time Zone: ☐ Eastern ☐ Pacific ☐ Central ☐ Mountain ☐ Other:

For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)

1.) Chain of Custody Number = Client Determined

2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite

3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.

4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, ML=Misc Liquid, SO=Soil, SD=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal

5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate. If no preservative is added = leave field blank

7.) **KNOWN OR POSSIBLE HAZARDS**

RCRA Metals	Characteristic Hazards	Listed Waste	Other
As = Arsenic Ba = Barium Cd = Cadmium Cr = Chromium Pb = Lead	FL = Flammable/Ignitable CO = Corrosive RE = Reactive	LW = Listed Waste (F, K, P and U-listed wastes.) Waste code(s):	OT = Other / Unknown (i.e.: Highflow pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:
Hg = Mercury Se = Selenium Ag = Silver MR = Misc. RCRA metals	TSCA Regulated PCB = Polychlorinated biphenyls		

Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)

Sample Analysis Requested <sup>(5)</sup> (Fill in the number of containers for each test)									
Should this sample be considered:		Total number of containers		<-- Preservative Type (6)					
Radioactive (If Yes, please supply isotopic info.)	Possible Hazards (7) Known or								Comments
									Note: extra sample is required for sample specific QC

[illegible]

## SAMPLE RECEIPT &amp; REVIEW FORM

Client: <u>SCES</u>		SDG/AR/COC/Work Order: <u>481971</u>		
Received By: <u>ZKW</u>		Date Received: <u>6/14/19</u>		
Carrier and Tracking Number		Circle Applicable: <input checked="" type="radio"/> FedEx Express <input type="radio"/> FedEx Ground <input type="radio"/> UPS <input type="radio"/> Field Services <input type="radio"/> Courier <input type="radio"/> Other		
		<u>7879 6757 9364</u>		
Suspected Hazard Information	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
A) Shipped as a DOT Hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hazard Class Shipped: _____ UN#: _____ If UN2910, Is the Radioactive Shipment Survey Compliant? Yes ___ No ___		
B) Did the client designate the samples are to be received as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	COC notation or radioactive stickers on containers equal client designation		
C) Did the RSO classify the samples as radioactive?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> CPM/mR/Hr Classified as: Rad 1    Rad 2    Rad 3		
D) Did the client designate samples are hazardous?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	COC notation or hazard labels on containers equal client designation		
E) Did the RSO identify possible hazards?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If D or E is yes, select Hazards below. <input checked="" type="checkbox"/> PCB's <input type="checkbox"/> Flammable <input type="checkbox"/> Foreign Soil <input type="checkbox"/> RCRA <input type="checkbox"/> Asbestos <input type="checkbox"/> Beryllium    Other: _____		
Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken    Damaged container    Leaking container    Other (describe)
2 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Client contacted and provided COC    COC created upon receipt
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Preservation Method: <input checked="" type="radio"/> Wet Ice <input type="radio"/> Ice Packs <input type="radio"/> Dry ice <input type="radio"/> None    Other: _____ *all temperatures are recorded in Celsius
4 Daily check performed and passed on IR temperature gun?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temperature Device Serial #: <u>IR3-18</u> Secondary Temperature Device Serial # (If Applicable): _____
5 Sample containers intact and sealed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Seals broken    Damaged container    Leaking container    Other (describe)
6 Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____
7 Do any samples require Volatile Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, are Encores or Soil Kits present for solids? Yes ___ No ___ NA ___ (If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes ___ No ___ NA ___ (If unknown, select No) Are liquid VOA vials free of headspace? Yes ___ No ___ NA ___ Sample ID's and containers affected: _____
8 Samples received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and tests affected: _____
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ID's and containers affected: _____
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No dates on containers    No times on containers    COC missing info    Other (describe)
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: No container count on COC    Other (describe)
12 Are sample containers identifiable as GEL provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Circle Applicable: Not relinquished    Other (describe)
Comments (Use Continuation Form if needed):				

PM (or PMA) review: Initials TMC Date 6/17/19 Page 1 of 1

GL-CHL-SR-001 Rev 6

**List of current GEL Certifications as of 26 June 2019**

<b>State</b>	<b>Certification</b>
Alaska	17-018
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122019-3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-19-15
Utah NELAP	SC000122018-27
Vermont	VT87156
Virginia NELAP	460202
Washington	C780